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Today's Editor: Patricia K. Lamm
                Michigan State University

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      SIAM Conference on Discrete Mathematics: Update
        SIAM Conference on Applied Linear Algebra
      Travel grants: SIAM 50th Anniversary, 2002 Meeting
      Table of Contents: Inverse Problems

Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: Giovanni Alessandrini <alessang@univ.trieste.it>
Subject: INdAM Workshop: Inverse Problems and Applications
Date: Mon, 21 Jan 2002

INdAM Workshop: Inverse Problems and Applications

CORTONA, Italy, June 3-9, 2002
(http://www.dsm.univ.trieste.it/~alessang/cortona/annuncio.htm)

Organizers
     Giovanni Alessandrini, Trieste
     Gunther Uhlmann, Washington

This workshop is organized in conjuction with the Special Session
"Inverse Boundary Problems and Applications" at the
The first Italian-American meeting (UMI - AMS)
(http://www.dm.unipi.it/~meet2002/english/index.html)
in Pisa (Italy) June 12 to 16, 2002.

Submitted by:
Prof. Giovanni Alessandrini
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Trieste, Italy
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From: ross@siam.org
Subject: SIAM Conference on Discrete Mathematics Update
Date: Thu, 24 Jan 2002

      UPDATE:

      SIAM Conference on Discrete Mathematics
      August 11-14, 2002
      Handlery Hotel & Resort
      San Diego, CA

      SUBMISSION DEADLINE EXTENSION

The Deadline for participation submissions has been extended to April
4, 2002.

To submit a Minisymposium Proposal, Paper, or Contributed Paper before
April 4, 2002, please visit:

http://www.siam.org/meetings/dm02/

****

Thank you for your support.

Regards,

Darrell Ross
SIAM, Conference Program Manager

PRELIMINARY CONFERENCE ANNOUNCEMENT

July 15-19, 2003
SIAM Conference on Applied Linear Algebra (LA03)
The College of William and Mary, Williamsburg, VA

Sponsored by SIAM Activity Group on Linear Algebra (SIAG/LA)
In coorporation with the International Linear Algebra Society (ILAS)

Program Committee

CHAIRS:

Roy Mathias, The College of William and Mary
Hugo Woerdeman, The College of William and Mary

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Raymond Chan, University of Hong Kong
John Gilbert, Xerox Co.
Per Christian Hansen, Technical University of Denmark
Nicholas Higham, University of Manchester
Ilse Ipsen, North Carolina State University
Horst Simon, National Energy Research Scientific Computing Center
Paul Van Dooren, Universite Catholique de Louvain

For upcoming details and updates, follow the website at:

http://www.siam.org/meetings/la03/

Elsevier Science sponsors Travel Grants
to the SIAM 50th Anniversary and 2002 Annual Meeting (SIAM50)

Five grants are available.

Program information for SIAM 50 at
http://www.siam.org/meetings/SIAM50/.

To qualify:
Individuals must be mathematical scientists with full time
appointments in universities in "outreach" countries, for whom
attendance would otherwise not be within reach. Any country on
the list of countries to which we extend SIAM "outreach"
membership rates - you can find the list of countries at
https://www.siam.org/membership/outreachlist.htm - will qualify.

Award:
1. round-trip excursion rate airfare (most economical available) to
SIAM50
2. US$250 to help defray costs while at the meeting
3. one year paid SIAM "outreach" member dues
***SIAM will waive registration fees for the five awardees.

To apply:
Send a cover letter stating your intention to attend SIAM50 and
explaining the reasons for your request.

Provide a letter from your home university or institute
expressing support for your attendance at the meeting. The letter
should confirm your position, provide the title of your position
and be signed by a department chairman or supervisor. A
commitment to fund the remainder of the cost of travel/expenses
not covered by the award should also be stated.

Individuals who will be presenting papers at the conference will be
given priority. Append to the letter a copy of the abstract of your
presentation. The presentation itself must be submitted by normal
channels.

Potential awardees must be able to receive permission to travel to
Philadelphia with the intent of attending the SIAM50 meeting.

Applications must be received by February 25, 2002.

Selection:
The awardees will be selected by a SIAM committee. The tentative
list
of winners to be submitted to Elsevier Science for approval on or
before April 1.

Applications for the Travel Grants should be sent to:
SIAM
Attn.: Elsevier/SIAM 50 Travel Grant Application
3600 University City Science Center
Philadelphia PA 19104 USA

meetings@siam.org

fax: 215-386-7999

On the method of Lavrentiev regularization for nonlinear ill-posed
problems   U Tautenhahn

An inverse boundary value problem in two-dimensional transport
A Tamasan

Synthetic aperture inversion   C J Nolan and M Cheney

Computational methods for a large-scale inverse problem arising in
atmospheric optics   L Gilles, C R Vogel and J M Bardsley

On the stationary points of the seismic reflection tomography and
differential semblance functionals in laterally homogeneous media
C C Stolk

On an integral transform and its inverse in nuclear imaging
M K Nguyen and T T Truong

CORRIGENDUM
Shape inversion from TM and TE real data by controlled evolution of
level sets   C Ramananjaona, M Lambert and D Lesselier

BOOK REVIEW
The Mathematics of Computerized Tomography
F Natterer (reviewed by Y Censor)

------- end -------

Today's Editor: Patricia K. Lamm
               Michigan State University

Today's Topics:
        International Conference on Ill-Posed and Inverse Problems
        IMACS Workshop on Adaptive Methods for PDEs
        New Journal in Multiscale Modeling
        Table of Contents: Inverse Problems in Engineering
     Table of Contents: Electronic Trans. on Numerical Analysis
     Table of Contents: Linear Algebra and Its Applications

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        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: "Andrey L. Karchevsky" <karchevs@math.nsc.ru>
Subject: International Conference on ILL-POSED and INVERSE PROBLEMS
Date: Thu, 28 Feb 2002

        International Conference on

        ILL-POSED and INVERSE PROBLEMS
 in honour of the 70th anniversary of the birth
        of Prof. M.M. Lavrent'ev
            August 5-9, 2002
          Novosibirsk, Russia

        Second Announcement

The Organizing Committee is pleased to invite you to attend the
International Conference ILL-POSED and INVERSE PROBLEMS in
Novosibirsk, Russia, August 5-9, 2002. Chairman Professor Vladimir
Romanov has personally expressed a most cordial welcome to all
participants.

Scientific Program

The conference consists of morning plenary sessions
and 4 afternoon parallel sections which include:
1. The theory of inverse problems;
2. Regularization methods for inverse and ill-posed problems;
3. Tomography problems;
4. Applications of inverse and ill-posed problems.

The opening ceremony will be held in the House of Scientists at 10:00
on Manday, August 5, 2002. Professor M.M. Lavrent'ev gives Plenary
Lecture.

Every plenary session contains 4 invited lectures (for 45 min each).
Afternoon sessions consist of oral and poster presentations.

Invitations and Visas

If you need a personal invitation to attend the Conference,
please contact Klimenko Olga: klimenko@math.nsc.ru
If you need a visa, please fill in the following form and send it to
mml@math.nsc.ru

     Visa Form

Surname (as in passport) (Mr., Mrs., Miss):
First name (as in passport):
Affiliation:
Position:
Address (official)
  Street:
  City:
  Postal code:
  Country:
  Fax:
  Phone:
  e-mail:
Home address:
Date of arrival:
Date of departure:
Citizenship:
Passport number:
Passport expiration date:
City (with a Russian Consulate) where you will apply for a visa:
Date of birth (year, month, date):
Previous visites to Russia (city, year):

Please, make a separate visa form for each accompanying person:
fill in the same fields for everyone (DO NOT omit affiliation,
position, address and fax of the institution FOR EMPLOYED and
FOR STUDENTS or PUPILS).

The arrival of the participants is expected on Sunday August, 4. The
conference will be ended on Friday August, 9 in the evening.
Departure day is Saturday August, 10.

Registration Fee

Registration fee is $250
The registration fee includes all Conference materials,
Welcome Reception, two coffee breaks daily, Conference Banquet,
excursions, transport at arrival and departure days.
Detailed information about hotels will be provided
in the Third Announcement in June 2002.

Abstracts

Abstracts will be reproduced and distributed in printed form to all
participants of Conference at the beginning of the Conference.
Abstracts should be submitted electronically to mml@math.nsc.ru
Submission is also possible by fax or by ordinary mail to
Dr. Olga Klimenko
Sobolev Institute of Mathematics
Academician Koptyug's Avenue, 4
Novosibirsk,
630090, Russia
Fax: +7-3832-33-25-98

Abstracts are due by May 1, 2002.

Please, print in English, using LaTex or AMS-Tex, 1 page
in the following format. [NOTE: The format has not been included in
this digest. Please refer to the conference webpage
      www.math.nsc.ru/conference/mml
for further information about abstracts. -Ed]

Contact Information

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www.math.nsc.ru/conference/mml

From: Ken Jackson <krj@cs.toronto.edu>
Subject: IMACS Workshop on Adaptive Methods for PDEs
Date: Thu, 14 Feb 2002

               First Announcement and Call for Papers

     IMACS WORKSHOP ON ADAPTIVE METHODS FOR PARTIAL DIFFERENTIAL
EQUATIONS
                          6-9 AUGUST 2002
                    The Fields Institute, Toronto

As part of the Fields Institute's year on "Numerical and Computational
Challenges in Science and Engineering", we are organizing a Workshop
on Adaptive Methods for Partial Differential Equations. This
workshop, which is co-sponsored by IMACS and the Fields Institute for
Research in Mathematical Sciences, will be held 6-9 August 2002 at the
Fields Institute in Toronto.

OBJECTIVE
Adaptive methods for partial differential equations (PDEs) are the
most effective computational approach for a large class of PDEs that
arise in many important applications in science and engineering. This
area has grown steadily during the past two decades. This workshop
will bring together leading researchers from around the world to
address both theoretical and computational aspects of adaptive methods
for PDEs and to foster stronger collaboration between mathematicians,
engineers and scientists.

TOPICS
* A posterior error estimation
* Adaptive H-p refinement
* Adaptivity with complex geometry
* Implementation of adaptive codes
* Moving mesh techniques and applications
* Adaptive spectral methods
* Nonlinear analysis
* Adaptive modeling
* Applications of adaptive methods

ORGANIZING COMMITTEE
* Paul Fisher, Argonne National Laboratories, U.S.A
* Joseph E. Flaherty, Rensselaer Polytechnic Institute, U.S.A.
* Benqi Guo, University of Manitoba, Canada (Co-Chairman)
* Kenneth R. Jackson, University of Toronto, Canada (Co-Chairman)
* Robert D. Russell, Simon Fraser University, Canada

INVITED SPEAKERS
* Mark Ainsworth, Strathclyde University, Scotland
* Ivo Babuska, University of Texas at Austin, U.S.A.
* Martin Berzins, University of Leeds, U.K.
* Anne Bourlioux, University of Montreal, Canada
* Leszek Demkowicz, University of of Texas at Austin, U.S.A.
* Oleg Vassilyev, University of Missouri, U.S.A.
* Jinchao Xu, Penn State University, U.S.A.

CALL FOR PAPERS
The program will consist of invited lectures (45 minutes each), and
contributed talks (30 minutes each). If you wish to contribute a
talk, please send a one-page abstract, written in English, related to
the topics of the conference, by 30 April 2002. The abstract should
include: names(s) and affiliation(s) of author(s), as well as the
address, e-mail address, phone and fax numbers of the contact person.
Authors are kindly requested to submit their abstracts via e-mail in
plain LaTeX (or plain AMS Tex) to:

                    Prof. Benqi Guo
                    Mathematics Department, University of Manitoba
                    Email: guo@cc.umanitoba.ca
                    Fax: 204 - 474 7611

For more details about the workshop, please see our webpage
 http://www.fields.utoronto.ca./programs/scientific/01-
02/numerical/adaptive/

From: muccie@siam.org
Subject: Announcing a New Journal in Multiscale Modeling
Date: Wed, 20 Feb 2002

    Now Accepting Submissions!

    Multiscale Modeling and Simulation
    A SIAM Interdisciplinary Journal

    Thomas Y. Hou, California Institute of Technology, Editor-in-Chief

    http://www.siam.org/journals/mms/mms.htm

    Announcing the first journal to provide a comprehensive forum for
    multiscale research.

    Centered around multiscale phenomena, Multiscale Modeling and
    Simulation (MMS) is an interdisciplinary journal focusing on the
    fundamental modeling and computational principles underlying various
    multiscale methods. Featuring a distinguished, international
editorial
    board, MMS publishes new ideas and methodologies that can be used in
    various application fields. Particularly emphasized is the interplay

between analysis and modeling, modeling and simulation, and
mathematics and various applications.

By its nature, multiscale modeling is highly interdisciplinary, with
developments occurring independently across fields. A broad range
of
scientific and engineering problems involve multiple scales.
Traditional monoscale approaches have proven to be inadequate, even
with the largest supercomputers, because of the range of scales and
the prohibitively large number of variables involved. Thus, there is
a
growing need to develop systematic modeling and simulation
approaches
for multiscale problems. MMS will provide a single broad,
authoritative source for results in this area.

MMS bridges the growing gap in communication between mathematics,
chemistry, physics, engineering, computer science, environmental
science, and more.

As part of the family of high-quality, distinguished SIAM journals,
MMS will benefit from global distribution, accelerated electronic
publication, and low subscription prices.

Submit now to the only journal to welcome papers from all
disciplines
that use multiscale methods

MMS accepts submissions via anonymous ftp. Complete electronic
submission instructions, instructions for authors, and a detailed
editorial policy are available at
http://www.siam.org/journals/mms/mms.htm. Please review the
instructions before submitting your paper.

Contact mms@siam.org with questions or for more information.

From: "james beck" <beck@egr.msu.edu>
Subject: Contents: Inverse Problems in Engineering
Date: Wed, 27 Feb 2002

Inverse Problems in Engineering   2001   Vol. 9, No. 5
                     Table of Contents

Electrical Process Tomography with Known Internal Structures and
Resistivities
L. M. Heikkmen, M. Vauhkonen, T. Savolainen, K. Leinonen and
J. P. Kaipio

Spline-Approydination. Method Of Solving Some Coefficient Inverse
Problems for Differential Equations of the Parabolic Type
A. Grebennikov

Numerical Solution of a First Kind Integral Equation of Potential
Theory   Jose D. Flores

Developing Nuclear Magnetic Resonance Imaging for Engineering
Applications   A. T. Watson, J. T. Hollenshead and C. T. P. Chang

Estimation of Thermophysical Properties of Composites Using

Multi-parameter Estimation and Zeroth-order Regularization
C. Aviles-Ramos and A. Haji-Sheikh

Multi-dimensional Heat Flux Reconstruction Using Narrow-band
Thermochromic Liquid Crystal Thermography
A. J. Kassab, E. Divo and J. S. Kapat

State Space Models In Process Tomography - Approidmation of State
Noise Covariance
A. Seppanen, M. Vauhkonen, E. Somersalo and J. P. Kaipio

Inverse Problems in Engineering   2001   Vol. 9, No. 6
                   Table of Contents

Absorption Coefficient Estimation in Heterogeneous Media Using a
Domain Partition Consistent with Divergent Beams
R. F. Carita Montero, N. C. Roberty and A. J. Silva Neto

Boundary Inverse Heat Conduction Problem: Algorithm and Error Analysis
0. M. Alifanov and A. V. Nenarokomov

Parametric Identification of Viscoelastic Materials from Time
and Frequency Domain Data
M. Mossberg, L. Hillstrom and L. Abrahamsson

Stochastic Regularization of Feedwater Flow Rate Evaluation for the
Venturi Meter Fouling Problem in Nuclear Power Plants
A. V. Gribok, I. K. Attieh, J. Wesley Hines and R. E. Uhrig

From: Lothar Reichel <reichel@reichel.math.kent.edu>
Subject: Table of Contents, ETNA, vol 12
Date: Fri, 1 Feb 2002

Electronic Transactions on Numerical Analysis   2001   Volume 12
                   Table of Contents

Numerical experiments with algebraic multilevel preconditioners
G. Meurant

Numerical condition of polynomials in different forms   H. Zhang

On parallel two-stage methods for Hermitian positive definite matrices
with applications to preconditioning
M. J. Castel, V. Migallo'n, and J. Penade's

Gersgorin-type eigenvalue inclusion theorems and their sharpness
R. S. Varga

Some nonstandard finite element estimates with applications to 3D
Poisson and Signorini Problems   F. B. Belgacem and S. C. Brenner

Piecewise linear wavelet collocation, approximation of the boundary
manifold, and quadrature   S. Ehrich and A. Rathfeld

Multi-symplectic Fourier pseudospectral method for the nonlinear
Schrodinger equation   J.-B. Chen and M.-Z. Qin

Chebyshev approximation via polynomial mappings and the convergence

behaviour of Krylov subspace methods   B. Fischer and F. Peherstorfer

Retooling the method of block conjugate gradients
A. A. Dubrulle

Error analysis of QR algorithms for computing Lyapunov exponents
E. J. McDonald and D. J. Higham

ETNA (Electronic Transactions on Numerical Analysis) is available at
http://etna.mcs.kent.edu and at several mirror sites, as well as on
CDROM.

Submitted by:
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Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)
------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
      Inverse Problems Workshop at Leeds
      Imaging Scientist Position at Bio-Imaging Research, Inc.
       LAA Special Issue on Eigenvalue Accuracy
      Table of Contents: Inverse Problems
      Table of Contents: Linear Algebra and Its Applications

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        Mail to ipnet-request@math.msu.edu

From: L Daniel <amt5ld@amsta.leeds.ac.uk>
Subject: Inverse problems workshop at Leeds
Date: Mon, 4 Mar 2002

An "Inverse Problems Workshop" will be held
in the School of Mathematics at the University of
Leeds on Monday afternoon on 15 April 2002.

Programme:

1.30 - 2.15: G. Bastay and V. Kozlov (Linkoping, Sweden)
             "Iterative methods for solving Cauchy problems
              for PDEs".

2.15 - 2.45: T. Johansson (Linkoping, Sweden)
             "Reconstruction of a stationary flow from
              boundary data".

2.45 - 3.00: Tea/coffee break.

3.00 - 3.30: B.D. Sleeman (Leeds, UK)
             "The linear sampling method and an approximation
              property in inverse scattering theory".

3.30 - 4.00: M. Soleimani (UMIST,UK)
             "Shape and conductivity reconstruction in EIT".

4.00 - 4.45: R.M. West (Leeds, UK)
             "Markov Chains Monte Carlo (MCMC) procedures for
              inverse problems".

The talks will be held in Classroom J in the School of Mathematics.

If you intend to come to Leeds University by car, then in the week-end
prior to the meeting, please e-mail me with your car registration
number such that car parking facilities can be arranged.

As the timetable is fairly compacted it is hoped that as many as
possible will try to arrive between 12 and 12.30, that will enable us

to go collectively to the bar or cafeteria (now merged) in the Senior
Common Room and discuss matters informally. Like the car parking,
could those that wish to follow this procedure please notify me
accordingly.

Daniel Lesnic
Department of Applied Mathematics, University of Leeds,
Leeds LS2 9JT, UK.
tel: +44-(0)113-2335181.
e-mail: amt5ld@amsta.leeds.ac.uk

POSITION: Imaging Scientist

LOCATION: Bio-Imaging Research, Inc.
                   Lincolnshire, IL (suburban Chicago)

Bio-Imaging Research is looking for an applied mathematician with an
understanding and mastery of mathematical methods related to signal
processing and image restoration. Areas of interest are sampling
theory, transformation theory form Fourier to Radon to wavelets, and
numerical methods in general. The candidate must have the ability to
translate abstract mathematical concepts into terms easily understood
by physicists, engineers and other mere mortals.

The ideal candidate will be an applied mathematician to help us with
all the new reconstruction algorithms and image quality
issues. Current team members already have the practical CT experience.
Their backgrounds are primarily physics and experience with previous
generations of CT-scanners. We want to add someone with a more
mathematical point-of-view. This could be a soon-to-be PhD, new PhD
or a few years past PhD.

The candidate chosen will be a member of a small, dedicated team of
imaging scientists located at Bio-Imaging with partners in academia
and industry. We are located about 30 miles north, northwest of
downtown Chicago in an area known for excellent schools and
recreational opportunities along with all of the cultural activities
(theatres, symphonies, operas, museums) of a major metropolitan area.

BIR's work has a direct impact on the world in which we live. Our
award winning team of innovative specialists work in a friendly
environment. BIR Management recognizes that our employees are the most
valuable assets, and it shows. We offer a very generous benefits
package, including:
      Medical
      Dental
      Vision
      Life insurance
      Long & short term disability
      401(k) with 50% employer match for the first 6%
      ESOP
      15 vacation days
      12 paid holidays
      10 days sick pay
      2 personal days

CONTACT: Marie Dunk
                    Manager, Human Resources
                    Phone: 847-634-6425 x128
                    Fax: 847-634-6440
                    E-mail: mdunk@birinc.com
                    Please reference job code: WS118

From: Jesse Barlow <barlow@cse.psu.edu>
Subject: LAA Special Issue on Eigenvalue Accuracy
Date: Fri, 1 Mar 2002 13:53:11

     Special Issue of Linear Algebra and Its Applications
        Accurate Solution of Eigenvalue Problems III

In the last 15 years, there have been a number of advances in the
accurate solution of eigenvalue problems. Well known advances includes
fast and more accurate methods for solving the symmetric tridiagonal
eigenproblem, more accurate methods for computing the singular value
decomposition, and further understanding of the conditioning theory of
the non-symmetric eigenvalue problem.

To recognize these advances and to encourage further advances, we are
proposing to have a special issue of Linear Algebra and Its
Applications on Accurate Solution of Eigenvalue Problems. So far, we
have completed one special issue (vol. 309) on this problem area and a
second one is pending. Since both of these issues received a number of
strong submissions, we expect that the same for the third special
issue.

This special issue is in coordination with the International Workshop
on Accurate Solution of Eigenvalue Problems IV to be held in Split,
Croatia on June 24--27, 2002. The participants in the workshop will be
strongly encouraged to submit papers to the special issue. Submissions
are welcome from non--participants as long as they are consistent with
the themes of the workshop.

The editors for this special issue will be

Jesse L. Barlow
Department of Computer Science
and Engineering
The Pennsylvania State University
University Park, PA 16802--6106

Beresford N. Parlett
Department of Mathematics
University of California at Berkeley
Berkeley, CA 94720

Kresimir Veselic'
Fernuniversitaet Hagen
Lehrgebeit Math. Physik
Postfach 940
5800 Hagen, Germany

Manuscripts submitted to this special issue will be refereed according to
standard procedures for Linear Algebra and Its Applications. The
deadline for

submissions will be January 15, 2003.

From: "Janet Thomas" <janet.thomas@iop.org>
Subject: Contents list for Inverse Problems issue 2
Date: Wed, 20 Mar 2002

Inverse Problems   April 2002   Volume 18, Issue 2
                    Table of Contents

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From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA contents
Date: Fri, 29 Mar 2002

Linear Algebra and its Applications   May 2002 Vol. 346, Issue 1-3
                    Table of Contents

Visit the journal at http://www.elsevier.nl/locate/jnlnr/07738

Submitted by:
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------- end -------
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Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
    Special Semester on Inverse Problems
    Int'l Symposium on Inverse Problems in Engineering Mechanics
    SIAM Conference on Optimization
    SIAM 50th Anniversary and 2002 Annual Meeting
    Table of Contents: Inverse Problems in Engineering
    Table of Contents: Linear Algebra and Its Applications

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        Mail to ipnet-request@math.msu.edu

From: "Prof. Heinz W. Engl" <engl@indmath.uni-linz.ac.at>
Subject: First Announcement of a Special Semester on Inverse Problems
Date: Sat, 20 Apr 2002

First Announcement of a Special Semester on Inverse Problems:
Computational Methods and Emerging Applications
(September 8 - December 13 , 2003)
at IPAM, UCLA, Los Angeles

Inverse problems are problems where causes for a desired or an
observed effect are to be determined. They have, nearly always driven
by applications, been studied for nearly a century now. An important
key feature, both theoretically and numerically, of inverse problems
is their ill-posedness, i.e., they do not fulfill Hadamard´s classical
requirements of existence, uniqueness and stability, under data
perturbations, of a solution: Solutions of an inverse problem might
not exist for all data (e.g., a consistent temperature history exists
only for a very smooth final temperature in the model of the classical
heat equation), it might not be unique (which raises the practically
relevant question of identifiability, i.e., the question if the data
contain enough information to determine the desired quantity), and it
might be unstable with respect to data perturbations. The last aspect
is of course especially important, since in real-world problems,
measurements always contain noise (another source of noise being
errors in numerical procedures), and approximation methods for solving
inverse problems which are as insensitive to noise as possible have to
be constructed, so-called regularization methods.

In the last twenty years, the field of inverse problems has undergone
rapid development: The enormous increase in computing power and the
development of powerful numerical methods made it possible to simulate
real-world direct problems of growing complexity. Since in many
applications in science and engineering, the inverse question of
determining causes for desired or observed effects is really the final
question, this lead to a growing appetite in applications for posing
and solving inverse problems, which in turn stimulated mathematical
research e.g., on uniqueness questions and on developing stable and
efficient numerical methods (regularization methods) for solving

inverse problems. This began mainly for linear problems, but more recently it has also been done for nonlinear problems.

The Special Semester at IPAM will focus on new challenges that have appeared recently in the field of inverse problems:

1.) New application fields:

 - Imaging Science including Image Processing, Computer Graphics and Computer Vision.

Many imaging problems are by their nature inverse problems, which suggests the use of regularization methods for their solution. On the other hand, specific methods developed in imaging like bounded-variation-regularization and diffusion filtering are being applied to other inverse problems. From the applications side e.g. in medical imaging, new techniques are emerging like elastographics and optical tomography, which in turn pose new mathematical and computational questions.

 - Inverse problems in life sciences: Life sciences are a real growth field for mathematical modeling.

An important step in modeling is to determine parameters from measurements. In life sciences, this usually leads to large-scale inverse problems, e.g., the simultaneous determination of hundreds of rate constants in very large reaction diffusion systems. Other, already a bit more classical, inverse problems in life sciences include inverse folding problems. Since many mathematical models in the life sciences are just now being developed, this will be the right time to bring experts in life sciences who develop such models and experts on inverse problems together in a kind of exploratory workshop.

 - Inverse problems in industry:

Knowledge about mathematical and numerical methods for inverse problems has diffused faster into the scientific community than into industry. On the other hand, many mathematical problems of interest to industry are in essence inverse problems. At the IPAM Special Semester, such problems will be studied and worked on in a "study group" format.

 - Inverse problems in physical sciences:

Many measurements in the physical sciences are indirect, thus their interpretation is an inverse problem whose ill-posedness is not always appropriately addressed. An example are deconvolution problems for ground based telescopes; deconvolution also appears in many other applications like in spectroscopy or in the interpretation of time-resolved fluorescence data with a variety of applications in medicine and biology. Also, modelling of epitaxial growth or other growth processes involves various inverse problems like the determination of growth rates from measured data or shape optimization problems; a methodological link to inverse problems is the use of level set methods.

2.) Methodological challenges

 - In recent years, extremely powerful numerical methods have been

developed for solving complex direct problems, e.g., multi-field problems in three dimension, both static and dynamic. Such methods include multigrid or, more general, multi-level methods and domain decomposition. When solving inverse problems for such complex problems, new questions arise also for the numerical treatment of the inverse problem, which include the optimal coupling of regularization methods with direct solvers in order to achieve overall optimal performance

- A powerful numerical method whose main advantage is that it can easily handle changes in the topology is the level set method. It has recently also been applied to inverse problems.

- Over the years, two major approaches have been followed in the inverse problems community: statistical and functional-analysis based approaches. A full understanding of the relations between these approaches is still lacking; this is also important for the issue of "uncertainty".

During the proposed Special Semester, special emphasis will be laid on some of these and other emerging challenges, although more classical topics will not be neglected. The Special Semester is intended to bring together scientists and engineers with applied and pure mathematicians interested in inverse problems.

The Special Semester will be structured as follows:

1.) Tutorials: In the second (and maybe also third) week of September 2003, a series of tutorials will be held both on methodological and on applications issues of inverse problems. These should also set the stage for research collaborations between mathematicians and applications scientists that should go on throughout the semester, and should prepare the participants for the subsequent events. The final list of topics has not yet been decided, a tentative list is:

 - methodology:
regularization methods for inverse problems
inverse spectral problems
statistical and wavelet methods for inverse problems
level set methods

 - application fields
inverse problems in the physical sciences, grouped according to different application fields
inverse problems in imaging science
inverse problems in biology
inverse scattering and tomography

2.) Study group with industry: This format has probably the longest tradition in Oxford and has been implemented also in other European countries, in Australia, and at RPI. On the first day of such a study group, industrial researchers present problems for which they want a mathematical model, solution, algorithm. In the following days, open discussions in groups, which tend to be quite intensive, should lead to progress. The outcome will generally not be a final solution, but a first mathematical model and a clear plan for further work. Such a study group should focus on problems from West Coast industries (but not exclusively) in order to make a follow-up by inverse problems experts who visit IPAM for the semester possible. Topics where industrial contacts have already been made include inverse problems

and optimal design in photonics and inverse problems in finance, especially identification of volatilities and interest rate models.

3.) Workshops: As a central part of the Special Semester, will be several workshops distributed over the whole semester focussing on the emerging challenges mentioned above. The workshops will be organized in two series in such a way that participants who are interested in two related topics can attend two consecutive workshops; the dates of these workshops have not yet been decided.

WORKSHOP SERIES 1: Computational Methods - Level Sets - Growth Processes

WORKSHOP SERIES 2: Deconvolution and Related Inverse Problems in the Physical Sciences - Emerging Applications of Inverse Problems Techniques to Imaging Science - Inverse Problems in the Life Sciences

4.) Wrap-Up Meeting at Lake Arrowhead: The Special Semester will close with a meeting in mid December at Lake Arrowhead, which will focus on reports of the progress made by senior and junior long-term participants.

Although these events form the core of the proposed Special Semester, there will also be ongoing activities throughout the semester by visitors interacting on specific research problems with colleagues at UCLA and neighboring universities and with each other. In due course, a call for applications for long-term participants will be made, but tentative expressions of interest are already welcome now.

The Chair of the Program Committee is Prof. Heinz W. Engl (Industrial Mathematics Institute, Johannes Kepler Universität Linz, Austria). He would welcome suggestions concerning topics and participants for the workshops, contacts to industry for study group problems, and expressions of interest for long-term participation at the Special Semester: engl@indmath.uni-linz.ac.at

Submitted by:
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From: Masataka Tanaka <dtanaka@gipwc.shinshu-u.ac.jp>
Subject: Int'l Symposium on Inverse Problems in Engineering Mechanics
Date: Thu, 18 Apr 2002

ISIP2003
International Symposium on Inverse Problems in Engineering Mechanics, 18-21 February 2003
Nagano/Japan

A first announcement of the above international symposium ISIP2003 is now available, and disclosed at the URL:
      http://homer.shinshu-u.ac.jp/ISIP2003/

The subject of the Symposium is a wide range of inverse problems in
engineering mechanics: mathematical and computational aspects,
parameter or system identification, shape determination, sensitivity
analysis, optimization, material property characterization, ultrasonic
NDT, other topics related to electromagnetics, elastodynamics, thermal
or fluid engineering. Submission of your paper and/or participation in
the Symposium will be heartily welcome.

The important dates for paper submission are as follows:

1. Deadline for abstract within two pages of A4 sheet: October 15, 2002
2. Notification of acceptance: December 17, 2002
3. Deadline for final camera-ready manuscript of full paper:
   February 18, 2003
4. Symposium: February 18-21, 2003

All the communications for the Symposium including paper submission and
also paper review will be made through the Internet.

Symposium Chair:
Prof. Masataka Tanaka
Department of Mechanical Systems Engineering
Shinshu University
4-17-1 Wakasato, Nagano, 380-8553 Japan
E-mail: dtanaka@gipwc.shinshu-u.ac.jp

From: ross@siam.org
Subject: SIAM Conference on Optimization
Date: Mon, 01 Apr 2002

The SIAM Conference on Optimization in Toronto, Canada is almost here!

May 20-22, 2002 are the conference dates with Short Courses on May 19
and the Validated Computing Workshop from May 23-25.

The Preregistration Deadline date (April 16, 2002) for your hotel and
SIAM registration is rapidly approaching!

Register NOW with the hotel and benefit from the SIAM room rate of
only $146.00 USD! Register NOW with SIAM and save $60.00 USD off of
your conference registration!

April 16, 2002 is the Deadline and rapidly approaching.

Westin Harbour Castle Hotel
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Toronto, Ontario M5J 1A6, Canada
Direct Telephone: 416-869-1600
Fax Reservation: 416-361-7448
Toll Free: 800-WESTIN-1 (US and Canada Only)
www.westin.com

SIAM Optimization Conference Webpage:

http://www.siam.org/meetings/op02/

From: cyoung@siam.org

        SIAM 50th Anniversary and 2002 Annual Meeting
        Philadelphia Marriott Hotel, Philadelphia, PA
                 July 8-12, 2002

Program Schedule is now available. Please visit:

    http://www.siam.org/meetings/SIAM50

Hotel reservation and pre-registration deadline: June 6, 2002

For additional information, contact SIAM Conference Department at
     siam@meetings.org

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Jeremy Haefner and Christopher J. Pappacena

Multiplicative mappings of operator algebras
Fangyan Lu

Submitted by:
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------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
     Inverse Problems Meeting at Royal Statistical Society
     SIAM Conference on Discrete Mathematics
       Mailing List for British Workshops on Inverse Problems
     Resarch Associate in Photoelastic Tomography
       Postdoc and PhD Position in Multiscale Image Representation
       Special LAA Issue in Honor of Peter Lancaster
     Table of Contents: Inverse Problems
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Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: "Christian P. Robert" <robert@ensae.fr>
Subject: Meeting on Inverse problems at Royal Statistical Society
Date: Thu, 23 May 2002

Dear All,

Please find below an announcement by the Royal Statistical Society
that should be of interest to the members of the IPNet. A link to the
same announcement is available as
      http://www.maths.soton.ac.uk/staff/JJForster/RS/

Christian P. Robert
Universite Paris Dauphine

                HALF-DAY MEETING ON INVERSE PROBLEMS
                        CALL FOR PAPERS

The Research Section of the Royal Statistical Society is planning a
half-day extended ordinary meeting on STATISTICAL APPROACHES TO
INVERSE PROBLEMS. The aim is to bring together statisticians and
scientists working in this rapidly developing area. In the tradition
of RSS Ordinary Meetings, papers presented at the meeting will be
published in JRSS, with discussion.

The organisers are particularly looking for papers which develop
generic statistical methodology applicable to a wide range of
problems. Possible topics of interest include, but are not restricted
to: deconvolution, inverse Laplace and Fourier problems, estimation of
surfaces, wavelet and multiscale approaches, source separation, model
choice issues, tomography.

The meeting is planned to take place in London in December 2003. Key
deadlines are the following:

        authors who wish to present a paper must submit a single-page
          abstract by 30 September 2002

authors of selected abstracts will then be invited to submit a
          full paper of about 10 to 15 journal pages by
             28 February 2003
       papers will be subject to refereeing, with feedback to authors
             by 31 May 2003
       final versions of accepted papers will be required by
             30 September 2003.

If you would like to present a paper at this meeting, please send your
single-page abstract electronically, as a LaTeX, postscript or PDF file
to Christian.Robert@ceremade.dauphine.fr by 30 SEPTEMBER 2002.

From: ross@siam.org
Subject: SIAM Conference on Discrete Mathematics (DM02)
Date: Thu, 30 May 2002

REGISTRATION NOW

The Preregistration deadline for the SIAM Conference on Discrete
Mathematics is Friday, July 12, 2002. Save $60 and register ahead
of time!

The Conference dates are August 11-14, 2002 and will be held at
the Handlery Hotel and Resort in San Diego, CA.

For more information on this conference please visit:

   http://www.siam.org/meetings/dm02/

For any other questions please contact:

Darrell Ross
SIAM, Conferences Program Manager
ross@siam.org

Thank you in advance!

Regards,
Darrell Ross
SIAM, Conferences Program Manager

From: Bill Lionheart <Bill.Lionheart@umist.ac.uk>
Subject: Mailing list for British Workshops on Inverse Problems
Date: Mon, 20 May 2002

Mailing List for British Workshops on Inverse Problems

We have set up a LISTSERV mailing list primarily for announcements of
our series of British Workshops on Inverse Problems, which happen
typically four times a year in England. The list is called
ip-workshop-uk which you can join by sending an email to
listserv@listserv.umist.ac.uk with the line "subscribe ip-workshop-uk"
in the body of the email. You can also visit our website
http://www.ma.umist.ac.uk/bl/ukipws

Bill Lionheart, Bill.Lionheart@umist.ac.uk, UMIST, Manchester UK

From: Bill Lionheart <Bill.Lionheart@umist.ac.uk>
Subject: RA in Photoelastic Tomography
Date: Mon, 20 May 2002

Research Associate: 3D Photoelastic Tomography

Commencing salary up to £ 19,681 (RA 1a point 6) per annum, according
to experience

Closing date June 28th.

Department of Mathematics, UMIST,
Department of Mechanical Engineering and Department of Computer
Science, University of Sheffield

A three year research post is available, funded by the EPSRC, to
develop and implement reconstruction algorithms for Tensor Tomography
for 3D Photoelasticity. The person appointed will spend the first 18
months in Manchester developing and algorithms to solve the forward
problem inverse problems and the remainder of the appointment in
Sheffield refining the algorithms, testing them with experimental data
and integrating the software developed with the automated measurement
system.

The successful candidate is likely to hold a PhD in Applied
Mathematics or Physics, and is required to have experience of
implementing numerical algorithms. Previous experience of Inverse
Problems, and computational electromagnetics/optics are highly
desirable. An aptitude for working in an experimental setting is
preferable since training in this aspect is available. Experience of
programming in high level languages on Unix/Linux systems, and in
MATLAB are desirable.

For enquires please email Dr W. Lionheart on
bill.lionheart@umist.ac.uk.

Applications, by CV with the names and contact details of three
referees, should be sent to Gwyn Cabral, Department of Mathematics,
UMIST, PO Box 88, Manchester, M60 1QD UK, Fax +44-161-200

From: "Haar Romenij, B.M. ter" <B.M.terhaarRomeny@tue.nl>
Subject: Postdoc and PhD position in Eindhoven
Date: Sat, 25 May 2002

Eindhoven University of Technology (TU/e), Department of Biomedical
Engineering (BME), has a vacancy for:

   1 postdoc (2 years) and 1 PhD student (4 years).
   Starting Date: August 1, 2002
   Subject: "Bio-inspired Multiscale Image Representation"

The Department of Biomedical Engineering is an inter-university
department in which departments of TU/e and University of Maastricht
closely collaborate. Education and research focus on the human body
and its functioning. BME has biological, medical and technological
aspects, making it strongly multidisciplinary.

Project: In August 2002 a collaborative program will start between
4 European partners. Goal is to develop new theory and practice in

singularity theory, scale-space theory and algorithmics to create
efficient algorithms for solving biomedical computer vision
tasks. This is a new approach to medical image analysis, inspired by
multi-scale models for human visual perception. The overall objective
is to summarize images in a generic tree/graph data structure. We will
investigate how this representation benefits image coding, storage,
shape representations, structural search, matching and indexing, for
tasks like image communication, database search, registration of
images, computer aided diagnosis, and object recognition. Techniques
used are: singularity theory, algorithmics, and scale-space theory.

Profile: The candidate postdoc has an academic and a PhD degree in a
relevant field and is familiar with multi-scale methods. The candidate
PhD student has an academic degree in a relevant field and affinity
with mathematical and statistical methods. The candidates like working
in a multidisciplinary environment with physicists, mathematicians,
biomedical engineers and biologists.

Terms of employment: Postdoc resp. PhD student: Fulltime, 2 years,
resp. 4 years with intermediate evaluation after 1 year. Salary will
be in accordance with national university regulations ("CAO
Nederlandse Universiteiten") for postdocs resp. PhD students. Support
with personal development and career planning. Attractive secondary
labor conditions (among others: a compensation of 1818 euro for the
production of the PhD thesis).

Contact: Send your letter of application and CV to TU/e, Dept. of BME, to
Dr. A. A. Klumper (a.a.klumper@tue.nl), Managing Director, PO Box
513, 5600 MB Eindhoven, mentioning vacancy-number 50.028 (Postdoc) or
50.033 (PhD student). For project information contact dr. L. Florack
(l.m.j.florack@tue.nl).

See also: http://www.bmt.tue.nl/imaging/bmi2/index.html.

Submitted by:
Prof. Bart M. ter Haar Romeny, PhD
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Biomedical Image Analysis
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From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA Special issue in honor of Peter Lancaster
Date: Thu, 23 May 2002

                LINEAR ALGEBRA AND ITS APPLICATIONS
              Special Issue in honor of Peter Lancaster

Linear Algebra and its Applications is pleased to announce a special
issue in honor of Professor Peter Lancaster in recognition of his many
important contributions to linear algebra, operator theory, and their
applications in science and engineering, and on occasion of his 75th
birthday on November 14, 2004.

The deadline for submisson of papers is March 31, 2003. We solicit papers for the special issue within the scope of LAA or research interests of Peter Lancaster. Papers for submission should be sent to any of the four special editors, and will be subject to normal refereeing procedures according to LAA standards:

Prof. Harm Bart
Erasmus University
Econometric Institute, P O Box 1738
3000 DR Rotterdam, The Netherlands
e-mail: bart@wis.few.eur.nl

Prof. Israel Koltracht
Department of Mathematics
University of Connecticut
Storrs, CT 06269, USA
e-mail: kolt@math.uconn.edu

Prof. Alexander Markus
Department of Mathematics
Ben Gurion University
P O Box 653
84105 Beer Sheva, Israel
e-mail: markus@cs.bgu.ac.il

>From September 1, 2002, till May 31, 2003:
Faculteit der Exacte Wetenschappen
Vrije Universiteit
de Boelelaan 1081a
1081 HV Amsterdam, The Netherlands

Prof. Leiba Rodman
Department of Mathematics
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Submitted by:
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480 Lincoln Drive   608-263-8891 (Work FAX)
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Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)

TOPICAL REVIEW

PAPERS

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A Tacchino, J Coyle and M Piana

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A note on Krylov subspace methods for singular systems
Z.-H. Cao, M. Wang

Convexoid and generalized derivations   M. Barraa

Visit the journal at http://www.elsevier.nl/locate/jnlnr/07738
The full text of articles is available via ScienceDirect :
http://www.sciencedirect.com/

Submitted by:
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University of Wisconsin-Madison   No Home FAX at present
Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)
------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
     Summer School on Imaging
     Minicourse on Applied Inverse Problems
     SIAM Conference on Computational Science and Engineering
     Research Associate Position: Electromagnetic Inverse Problems
     Table of Contents: Inverse Problems in Engineering
     Table of Contents: Mathematics of Control, Signals, and Systems
     Table of Contents: Linear Algebra and Its Applications
     Contents, Special Issue: Linear Algebra and Its Applications

Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: Asun Hortal <mhortal@pa.uc3m.es>
Subject: Summer School on Imaging
Date: Fri, 31 May 2002

                   Summer School on Imaging
        Martina Franca (Taranto)   Septembre 15-21, 2002
               http://www.math.unifi.it/~cime/

Imaging is a multidisciplinary science with applications in medicine,
geophysics, astrophysics, biology, various engineering fields and many
other areas. The goal of this summer school is to attract the
attention and interest of theoreticians (applied mathematicians in
particular) to the many interesting and important problems in imaging
through lectures by expert scientists and discusions. It will provide
a basic introduction to the numerical and analytical methods developed
in different fields with special emphasis on their common points. The
lecturers will present material in interdisciplinary form as much as
possible but will also address specific imaging problems with real and
synthetic data and asess the effectiveness of the methodology as well
as its limitations that require further research.

Course directors:

Prof. George Papanicolau (Stanford Univ.)
papanico@georgep.stanford.edu
Prof. Giorgio Talenti (Univ. di Firenze)

Lectures:

Array imaging in noisy environments
Prof. George Papanicolaou
Stanford University (USA)

Seismic imaging
Prof. William W. Symes
Rice University   (USA)

Tomographic imaging
Prof. Frank Natterer
Univ. Munster   (Germany)

Diffuse imaging for medical diagnoses
Simon R. Arridge
Univ. College London (England)

From: Elisa Francini <elisa@iaga.fi.cnr.it>
Subject: Minicourse on Applied Inverse Problems
Date: Wed, 26 Jun 2002

Minicourse on Applied Inverse Problems
Firenze, October 7-11

As part of the project Problemi di identificazione ed applicazioni of the
Gruppo Nazionale di Analisi Matematica, Probabilità e Applicazioni
(INdAM),
the Istituto per le Applicazioni del Calcolo (Sezione di Firenze) is
organizing a Minicourse on Applied Inverse Problems.

The minicourse will take place in the Dipartimento di Matematica e
Applicazioni per l'Architettura (DMAA) in Piazza Ghiberti, 27 in Firenze.

The minicourse shall consist of 3 cycles of lectures of 5 hours each:

Professor Lars Eldén (Linköping University): Numerical solutions to
Cauchy
problems in parabolic and elliptic equations.

Professor William Rundell (Texas A&M University): Reconstruction methods
in
inverse eigenvalue problems and in inverse scattering.

Professor Erkki Somersalo (Helsinki University of Technology):
Statistical
methods in inverse problems.

Two afternoons will be devoted to additional talks.

Updated information can be found on the web-page

http://www.iaga.fi.cnr.it/aip.html

These minicourse will be specially devoted to young researchers for
the specialization in up-to-date topics in Inverse Problems.

Prospective participants are invited to communicate their intention
within
the 31st of July to the address aip@iaga.fi.cnr.it.

A limited number of travel grants for young researchers is available.
Those who are interested are invited to apply.

Elisa Francini
Istituto per le Applicazioni del Calcolo
Sezione di Firenze

Via Santa Marta, 13A
50139 FIRENZE

From: Omar Ghattas <oghattas@cs.cmu.edu>
To: ipnet-digest@math.msu.edu
Subject: SIAM Conference on Computational Science and Engineering
Date: Sun, 16 Jun 2002

SIAM Conference on Computational Science and Engineering (CSE03)
February 9-13, 2003
Hyatt Regency Islandia Hotel & Marina, San Diego, CA
http://www.siam.org/meetings/cse03

Computational Science & Engineering (CS&E) is now widely accepted,
along with theory and experiment, as a crucial third mode of
scientific investigation and engineering design. Simulation has
enabled the study of biological, chemical, and physical phenomena and
engineered systems that are dangerous, expensive, or impossible to
study by direct observation. Aerospace, automotive, biomedical,
chemical, civil infrastructure, electronics, energy, environmental,
and other industrial sectors now rely on simulation for technical
decision support. For federal agencies also, CS&E has become an
essential support for decisions on resources, transportation, and
defense. CS&E is by nature interdisciplinary. It grows out of physical
applications and it depends on computer architecture, but at its heart
are powerful algorithms and methods. Much of CS&E has involved
simulation, but the future surely includes large-scale optimization,
design, and data assimilation, especially in the presence of
uncertainty.

ORGANIZING COMMITTEE
Steven F. Ashby, (co-chair) Lawrence Livermore National Laboratory
Isabelle Charpentier, Institut d'Informatique et Mathematiques
                     Appliquees de Grenoble
John Drake, Oak Ridge National Laboratory
Omar Ghattas, (co-chair) Carnegie Mellon University
Gene H. Golub, Stanford University
George M. Homsy, University of California, Santa Barbara
Christopher R. Johnson, University of Utah
David E. Keyes, (co-chair) Old Dominion University
Michael Levitt, Stanford University
Linda R. Petzold, (co-chair) University of California, Santa Barbara
Michael Ortiz, California Institute of Technology
John Shadid, Sandia National Laboratories
Shang-Hua Teng, Akamai/Boston University
Mary F. Wheeler, University of Texas, Austin

CONFERENCE THEMES (Partial List)
Advanced Discretization Methods, Computational Biology and
Bioinformatics,
Computational Chemistry and Chemical Engineering, Computational Earth
and Atmospheric Sciences, Computational Electromagnetics,
Computational Fluid Dynamics, Computational Medicine and
Bioengineering, Computational Physics and Astrophysics, Computational
Solid Mechanics and Materials, CS&E Education, Discrete and
Combinatorial Algorithms for CS&E, Inverse Problems, Meshing and
Adaptivity, Multiscale and Multiphysics Problems, Numerical Algorithms
for CS&E, Optimal Design and Control, Parallel and Distributed
Computing, Problem-Solving Environments, Software and Middleware

Systems, Uncertainty Estimation and Sensitivity Analysis,
Visualization and Computer Graphics,

PLENARY SPEAKERS
Francine D. Berman, UCSD/NPACI
Janice L. Coen, National Center for Atmospheric Research
Mark Gerstein, Yale University
William D. Gropp, Argonne National Laboratory
Bruce Hendrickson, Sandia National Laboratories
Thomas J.R. Hughes, Stanford University
Ron Kikinis, Brigham and Women's Hospital and Harvard Medical School
Michael L. Norman, University of California, San Diego
Eric S.G. Shaqfeh, Stanford University
Spencer Sherwin, Imperial College
Jacob K. White, Massachusetts Institute of Technology

DEADLINE DATES
Minisymposium Proposals   July 16, 2002
Minisymposium abstracts and Contributed abstracts   August 13, 2002
              in lecture or poster format
Audiovisual Requirements   January 13, 2003

From: Bill Lionheart <Bill.Lionheart@umist.ac.uk>
Subject: Research Associate Position: Electromagnetic Inverse Problems
Date: Tue, 09 Jul 2002

We have a vacancy for a Research Associate in the Department of
Mathematics, UMIST, UK to work on

ELECTROMAGNETIC INVERSE PROBLEMS FOR LIQUID CRYSTAL DISPLAYS AND
CAPACITANCE IMAGING

Commencing salary up to £19,681 (UK pounds) per annum, according to
experience, closing date August 12th 2002.

For further details please see
http://www.ma.umist.ac.uk/bl/ukipws/lcjobad.html

Bill Lionheart, bill.lionheart@umist.ac.uk

From: "James Beck" <jamesverebeck@attbi.com>
Subject: Contents: Inverse Problems in Engineering
Date: Thu, 27 Jun 2002

Inverse Problems in Engineering   April 2002   Volume 10, No. 2
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Ill-Posedness and Accuracy in Connection with the Recovery of a Single
Parameter from a Single Measurement   A. Wirgin

Data Errors and an Error Estimation for ill-Posed Problems
A. G. Yagola, A. S. Leonov and V. N. Titarenko

Inverse Lighting Problem in Radiosity   M. Contensin

Recurrent Neural Network Model to Retrieve the Long Range Spherical
Potential Energy Function from Second Vinal Coefficient
J. L. Neves, J. P. Braga, A. P. Braga and M. B. De Almeida

A Boundary Element Regularization Method for the Boundary
Determination in Potential Corrosion Damage
D. Lesnic, J. R. Berger and P. A. Martin

Mathematics of Control, Signals, and Systems   2002 Vol. 15, No. 1
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Mathematics of Control, Signals, and Systems   2002 Vol. 15, No. 2
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INFORMATION
Information on MCSS including tables of contents is
available at its home pages:
www.cwi.nl/~schuppen/mcss/mcss.html
www.math.rutgers.edu/~sontag/mcss.html

Address for submissions by email or regular mail:
J.H. van Schuppen (Editor-in-Chief MCSS)
CWI
P.O.Box 94079
1090 GB Amsterdam
The Netherlands
Email mcss@cwi.nl

Eduardo Sontag and Jan van Schuppen (Editors)

Submitted by: Corry Magrijn (Secretary)
for Jan H. van Schuppen (Editor-in-Chief MCSS)

From: Hans Schneider <hans@math.wisc.edu>

The reverse order law for the Drazin inverses of multiple matrix
products   Guorong Wang

Modelling the folding of paper into three dimensions using affine
transformations   Sarah-Marie Belcastro and Thomas C. Hull

Comparisons of spectral radii and the theorem of Stein-Rosenberg
Wen Li, Ludwig Elsner and Linzhang Lu

Submitted by:
Hans Schneider   hans@math.wisc.edu.
Department of Mathematics   608-262-1402 (Work)
Van Vleck Hall   608-271-7252 (Home)
480 Lincoln Drive   608-263-8891 (Work FAX)
University of Wisconsin-Madison   No Home FAX at present
Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)

From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA Contents: 4th special issue on linear systems & control
Date: Sun, 30 Jun 2002

Linear Algebra and its Applications   15 August 2002   Vols 351-352
                    Table of Contents

       Fourth special issue on linear systems and control

Fourth special issue on linear systems and control
V. D. Blondel, D. Hinrichsen, J. Rosenthal and P. Van Dooren

Statistical learning methods in linear algebra and control problems:
the example of finite-time control of uncertain linear systems
C. T. Abdallah, F. Amato, M. Ariola, P. Dorato and V. Koltchinskii

Two-sided residue interpolation in matrix H2 spaces with symmetries:
conformal conjugate involutions
D. Alpay, V. Bolotnikov and L. Rodman

Feedback invariants of restrictions and quotients: series connected
systems   I. Baragana and I. Zaballa

The presence of a zero in an integer linear recurrent sequence is
NP-hard to decide   Vincent D. Blondel and Natacha Portier

Can spectral value sets of Toeplitz band matrices jump?
A. Bottcher and S. M. Grudsky

Two numerical methods for optimizing matrix stability
James V. Burke, Adrian S. Lewis and Michael L. Overton

Existence and uniqueness of solutions for a class of piecewise linear
dynamical systems   M. K. Camlibel and J. M. Schumacher

State-feedback H[infin]-type control of linear systems with
time-varying parameter uncertainty   Tobias Damm

Counterexamples to pole placement by static output feedback
A. Eremenko and A. Gabrielov

Silverman algorithm and the structure of discrete-time stochastic systems   Augusto Ferrante, Giorgio Picci and Stefano Pinzoni

A survey of nonsymmetric Riccati equations
Gerhard Freiling

H[infin]-control of linear state-delay descriptor systems: an LMI approach   E. Fridman and U. Shaked

A study of behaviors   P. A. Fuhrmann

Real and complex stability radii of polynomial matrices
Y. Genin, R. tefan and P. Van Dooren

On minimal degree simultaneous pole assignment problems
B. K. Ghosh and X. A. Wang

More on pseudospectra for polynomial eigenvalue problems and applications in control theory
Nicholas J. Higham and Francoise Tisseur

Detecting a definite Hermitian pair and a hyperbolic or elliptic quadratic eigenvalue problem, and associated nearness problems
Nicholas J. Higham, Francoise Tisseur and Paul M. Van Dooren

Hybrid static output feedback stabilization of second-order linear time-invariant systems   Bo Hu, Guisheng Zhai and Anthony N. Michel

A constrained approximation problem arising in parameter identification   Birgit Jacob, Juliette Leblond, Jean-Paul Marmorat and Jonathan R. Partington

Root counting, phase unwrapping, stability and stabilization of discrete time systems   L. H. Keel and S. P. Bhattacharyya

Rosenbrock models and their homotopy equivalence
Vakhtang Lomadze

Grobner basis solutions of constrained interpolation problems
Henry O'Keeffe and Patrick Fitzpatrick

Minimal nonsquare spectral factors
M. A. Petersen and A. C. M. Ran

Nonsquare spectral factors via factorizations of a unitary function
M. A. Petersen and A. C. M. Ran

On the geometry of the set of controllability subspaces of a pair (A,B)   F. Puerta and X. Puerta

A cellular decomposition of the manifold of observable conditioned invariant subspaces   F. Puerta, X. Puerta and I. Zaballa

Output feedback invariants
M. S. Ravi, Joachim Rosenthal and Uwe Helmke

Structured finite-dimensional controller design by convex optimization   Carsten W. Scherer

The Sylvester equation and approximate balanced reduction

D. C. Sorensen and A. C. Antoulas

Canonical forms and parameter identification problems in perspective
systems   Satoru Takahashi and Bijoy K. Ghosh

On some special features which are peculiar to discrete time behaviors
with trajectories on [?]   Maria Elena Valcher

Module theoretic approach to controllability of convolutional systems
Paolo Vettori and Sandro Zampieri

Key problems in the extension of module-behaviour duality
Jeffrey Wood

Poles, zeros, and sheaf cohomology   Bostwick F. Wyman

A simple state-space design of an interactor for a non-square system
via system matrix pencil approach   wXin Xin and Tsutomu Mita

This volume is now available on the LAA website:
http://www.elsevier.nl/inca/publications/store/5/2/2/4/8/3/index.htt .

Submitted by:
Hans Schneider   hans@math.wisc.edu.
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University of Wisconsin-Madison   No Home FAX at present
Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)
------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
      Workshop in Lisbon: Inverse Obstacle Problems
      SIAM Conference: Math/Computational Issues in the Geosciences
      Postdoctoral position: Montana State and Gemini Observatory
      Special Issue: Linear Algebra and Its Applications
      Table of Contents: Inverse Problems

Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: Carlos Alves <calves@math.ist.utl.pt>
Subject: Workshop in Lisbon on Inverse Obstacle Problems
Date: Sat, 20 Jul 2002

Workshop on Inverse Obstacle Problems
Lisbon, Instituto Superior Tecnico,
November 4-6, 2002

http://www.math.ist.utl.pt/wiop/

Inverse Obstacle Problems is an important area of applied mathematical
research with applications in several areas of engineering and
sciences, namely non destructive testing, detection of cracks or
material inhomogeneities, medical imaging, etc. The aim of this
workshop is to discuss new developments, mathematical results and
numerical challenges on Inverse Obstacle Problems. The workshop is
dedicated to Professor Rainer Kress, on the occasion of his 60th
birthday.

There is no registration fee to attend the workshop.

Further information:
Web page: http://www.math.ist.utl.pt/wiop/
Email: wiop@math.ist.utl.pt

The Organizing Committee
Carlos Alves (IST), Andreas Kirsch (U. Karlsruhe)

From: Kirsten Wilden <wilden@siam.org>
Subject: SIAM Conf. on Math./Computational Issues in the Geosciences
Date: Tue, 23 Jul 2002

Conference Name: SIAM Conference on Mathematical and Computational
                  Issues in the Geosciences (SIAG/GS) (GS03)

Location: Radisson Hotel and Suites Austin, Austin, Texas

Dates: March 17-20, 2003

The Call for Presentations for this conference is available at:
        http://www.siam.org/meetings/gs03/

Deadlines:
  Deadline for submission of minisymposium proposals: August 20, 2002
  Deadline for minisymposium speaker abstracts: September 17, 2002
  Deadline for submission of contributed abstracts: September 17, 2002

For additional information, contact SIAM Conference Department at
      siam@meetings.org

From: Curt Vogel <vogel@gauss.math.montana.edu>
Subject: postdoctoral position at Montana State and Gemini Observatory
Date: Fri, 26 Jul 2002

Postdoctoral position in Applied and Computational Mathematics at
Montana State University and the Gemini Observatory, Hilo, Hawaii.

Analysis, Modeling, and Simulation of Adaptive Optics Systems for
Extremely Large Telescopes

The goal is to develop algorithms for the simulation and control of
large-scale adaptive optics systems for astronomical telescopes. The
focus will be on multiconjugate adaptive optics. Work will be carried
out at the Department of Mathematical Sciences at Montana State
University and the Gemini Observatory in Hilo, Hawaii. Directors of
this collaborative project are Dr. Brent Ellerbroek (Gemini) and
Professor Curt Vogel (Montana State).

Ideal qualifications include expertise in one or more of the following
fields: Fourier Optics, Computational and Applied Mathematics, Inverse
Problems, Control Theory, and Astronomical Imaging. In addition, the
applicant should be proficient with MATLAB.

$40,000 + benefits + travel for 1 year (funded by the Center for
Adaptive Optics); renewable for up to 2 more years (funded by the US
Air Force Office of Scientific Research).

Review of applications will begin immediately and will continue until
the position is filled.

For more information, check the web page

  http://www.math.montana.edu/~vogel/Hiring/new_position.html

or e-mail Curt Vogel (vogel@math.montana.edu).

From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA special issue announcements
Date: Wed, 24 Jul 2002

                LINEAR ALGEBRA AND ITS APPLICATIONS
           Special issue on Matrices and Mathematical Biology

                          Call for papers

In the last decade the field of mathematical biology has expanded very

rapidly. Biological research furnishes both data on and insight into the workings of biological systems. However, qualitative and quantitative modelling and simulation are still far from allowing current knowledge to be organized into a well-understood structure. Further, the diversity present in mathematical biology, coupled with the absence of a single unifying approach, has inspired the formation of entirely new scientific disciplines such as bioinformatics.

Theoretical research activity in mathematical biology is naturally of an interdisciplinary character. It involves mathematical and statistical investigations, sometimes in combination with techniques originating from the computational sciences. In many of these approaches, linear algebra is key to solving the mathematical problems which arise. For instance, in some population models, the asymptotic rate of increase of the population turns out to be the spectral radius of a certain matrix associated with the population, while the other eigenvalues also yield information on the evolution of the population's structure. Conversely, problems in mathematical biology can enrich linear algebra. For example, in attempting to measure the influence of a single matrix entry on a simple eigenvalue, linear algebraists frequently employ the derivative of that eigenvalue with respect to the entry. However, some biologists have proposed the use of the elasticity, or a logarithmic derivative, of an eigenvalue with respect to a matrix entry in order to measure the effect on that eigenvalue of perturbing a matrix entry. Thus linear algebraists are challenged to deepen and develop the understanding of the ways in which the effects of changes in the ecological conditions on the populations can be measured through further theoretical investigations.

A recent book by Caswell on matrix population models makes extensive use of linear algebraic techniques. Quoting from the introduction to that book: "Matrix population models -- carefully constructed, correctly analyzed, and properly interpreted - provide a theoretical basis for population models... A goal of this book is to raise the bar of what constitutes rigorous analysis in population models.... The work of the population biologist is too important to settle for less." But Caswell's call for careful mathematical construction and analysis applies to areas beyond the subject of population models; clearly a rigorous approach would benefit all areas of interaction between biology and mathematics.

The Special Issue of LAA dedicated to Matrices and Mathematical Biology is intended to both foster and accelerate cross fertilization between those working primarily in linear algebra and those working primarily in mathematical biology. The editors hope that such an issue of LAA will be of benefit to both fields.

This special issue will be open for all submissions containing new and meaningful results that advance interaction between linear algebra and mathematical biology. The editors welcome submissions in which linear algebraic methods play an important role for novel approaches to problems arising in mathematical biology, or in which investigations in mathematical biology motivate new tools and problems in linear algebra. Survey papers which discuss specific areas involving the interaction between biology and linear algebra, particularly where such interaction has been successful, are also very welcome.

Areas and topics of interest for the special issue include, but are

not limited to:

        metabolistic pathways
        statistical data analysis
        linear algebra problems in graph partitioning
        matrix population models
        model discrimination in biokinetics
        linear algebra problems in network analysis and synchronization
        subspace oriented eigenvalue problems
        aggregation/disaggregation or related techniques
        hidden Markov models
        epidemic models
        modelling phylogenetic trees

All papers submitted must meet the publication standards of Linear
Algebra and its Applications and will be refereed in the usual
way. They should be submitted to one of the special editors of this
issue listed below by 31 May 2003.

        Michael Dellnitz
        Department of Mathematics and Computer Science
        University of Paderborn
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        Steve Kirkland
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        Regina, Saskatchewan
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        University of Connecticut
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        neumann@math.uconn.edu

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        Department of Mathematics & Computer Science
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        Arnimallee 2-6
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        Germany
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See http://www.math.wisc.edu/~hans/speciss.html
for the calls for papers of the following LAA special issues all of
which invite submissions at the present time:

 - Special issue devoted to the ILAS conference at Auburn in June 2002.
 - Special issue on the occasion of Peter Lancaster's 75th birthday.
 - Special issue on Large Scale Linear and Nonlinear Eigenvalue Problems.
 - Special issue on Linear Algebra in Signal and Image Processing
 - Special Issue on Order Reduction of Large-Scale Systems.

- Tenth Special Issue on Linear Algebra and Statistics
  - Special Issue on Matrices and Mathematical Biology

Submitted by:
Hans Schneider   hans@math.wisc.edu.
Department of Mathematics   608-262-1402 (Work)
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Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)

All articles are free for 30 days after publication on the web. This
issue is available at: http://stacks.iop.org/0266-5611/18/i=4

TOPICAL REVIEW

Inverse problems as statistics
S N Evans and P B Stark

PAPERS

Iterative regularization of parameter identification problems by
sequential quadratic programming methods M Burger and W M\"uhlhuber

Isospectral strings   H P W Gottlieb

Optimal finite difference grids for direct and inverse
Sturm--Liouville problems   L Borcea and V Druskin

Discretization of the Schr\"odinger spectral problem   A B Shabat

An inverse boundary problem for the steady-diffusion equation with
moving boundaries with applications to the pearlite--austenite
transformation in steel   N D Aparicio and C Atkinson

The MUSIC-algorithm and the factorization method in inverse scattering
theory for inhomogeneous media   A Kirsch

The Aharonov--Bohm effect and time-dependent inverse scattering theory
R Weder

Line segment crack recovery from incomplete boundary data
A Ben Abda, M Kallel, J Leblond and J-P Marmorat

Identification of nonlinearity in a conductivity equation via the
Dirichlet-to-Neumann map   H Kang and G Nakamura

Equipotential line method for magnetic resonance electrical impedance
tomography   O Kwon, J-Y Lee and J-R Yoon

Exactly solvable eigenvalue problems for a nonlocal nonlinear
Schr\"odinger equation   Y Matsuno

Reconstruction of a current distribution from its magnetic field
R Kress, L K\"uhn and R Potthast

On theory and application of the Helmholtz equation least squares
method in inverse acoustics   V Isakov and S F Wu

Efficient determination of multiple regularization parameters in a
generalized L-curve framework   M Belge, M E Kilmer and E L Miller

Regularization of a Fourier series method for the Laplace transform
inversion with real data   L D'Amore and A Murli

------- end -------

IPNet Digest   Volume 9, Number 08   September 5, 2002

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
      Special Semester on Inverse Problems at IPAM, UCLA, Fall 2003
        SIAM Conference: Math./Computational Issues in Geosciences
         SIAM Conference: Applications of Dynamical Systems
      Post-doc Position: Inversion of Electromagnetic/Magnetic Data
      Table of Contents: Linear Algebra and Its Applications

Submissions for IPNet Digest:
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Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: "Prof. Heinz W. Engl" <engl@indmath.uni-linz.ac.at>
Subject: Special Semester on Inverse Problems at IPAM, UCLA, Fall 2003
Date: Thu, 29 Aug 2002

Special Semester on Inverse Problems at IPAM, UCLA, Fall 2003

An updated version of the announcment for this Special Semester is now
on the web (www.ipam.ucla.edu/programs/inv2003/), including an
application form for participation. This version contains a more
complete program including dates of workshops etc.

Everybody wanting to participate is encouraged to express his / her
interest by EMail (inv2003@ipam.ucla.edu; no need to send me a copy, I
get one automatically). Please do not send expressions of interest to
my personal Email address, since then, the IPAM office would not have
them on file.

Heinz W. Engl

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Institut fuer Industriemathematik secretary: nikolaus@indmath.uni-
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A-4040 Linz   Fax:ext. 8855
Oesterreich / Austria   home phone: +43-(0)732-245518
             World Wide Web: http://www.indmath.uni-linz.ac.at/

From: Kirsten Wilden <wilden@siam.org>
Subject: SIAM Conf. on Math./Computational Issues in Geosciences
Date: Thu, 15 Aug 2002

Subject: SIAM Conference on Mathematical and Computational Issues in
         the Geosciences

Conference Name: SIAM Conference on Mathematical and Computational
         Issues in the Geosciences (SIAG/GS) (GS03)

Location: Radisson Hotel and Suites Austin, Austin, Texas

Dates: March 17-20, 2003

The Call for Presentations for this conference is available at:
        http://www.siam.org/meetings/gs03/

                        Deadlines
Deadline for submission of minisymposium proposals: August 20, 2002
Deadline for minisymposium speaker abstracts: September 17, 2002
Deadline for submission of contributed abstracts: September 17, 2002

For additional information, contact SIAM Conference Department at
        meetings@siam.org.

From: Kirsten Wilden <wilden@siam.org>
Subject: SIAM Conf. on Applications of Dynamical Systems
Date: Fri, 23 Aug 2002

Subject: SIAM Conference on Applications of Dynamical Systems

Conference Name: SIAM Conference on Applications of Dynamical
        Systems (SIAG/DS) (DS03)

Location: Snowbird Ski and Summer Resort, Snowbird, UT

Dates: May 27-31, 2003

The Call for Presentations for this conference is available at:
             http://www.siam.org/meetings/ds03/

                        Deadlines
Deadline for submission of minisymposium proposals: October 29, 2002
Deadline for minisymposium speaker abstracts: November 26, 2002
Deadline for submission of contributed abstracts: November 26, 2002

For additional information, contact the SIAM Conference Department at
         meetings@siam.org.

From: Yaoguo Li <ygli@mines.edu>
Subject: Post-doc position available
Date: Thu, 01 Aug 2002

Post-doctoral position:
Department of Geophysics, Colorado School of Mines

The Department of Geophysics at Colorado School of Mines invites
applications for a post-doctoral position in unexploded ordnance (UXO)
research. The successful applicant is expected to carry out research
in the area of processing and inversion of electromagnetic and
magnetic data for UXO detection and discrimination and to interact
with funding agencies and collaborating institutions. The applicant
should have a strong background in electromagnetic and potential-field
methods, geophysical inversions, and optimization
techniques. Familiarity with Fourier analysis, wavelet transforms, and
statistical simulation is desired.

The position is open immediately and the initial appointment is for
one year with the possibility of renewal. Initial salary is
US$35,000/year with standard benefits. Please submit your application
including a curriculum vitae and names of three references to:

Dr. Yaoguo Li
Department of Geophysics
Colorado School of Mines
1500 Illinois Street
Golden, CO 80401
USA
email: ygli@mines.edu

From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA contents
Date: Sat, 3 Aug 2002

Linear Algebra and its Applications   Sept 15, 2002   Vol. 353, 1-3
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Helmut Wielandt 19 December 1910-14 February 2001 A personal memoir
Hans Schneider

Wielandt's proof of the exponent inequality for primitive nonnegative
matrices   Hans Schneider

The Laplacian spectrum of a mixed graph
Xiao-Dong Zhang and Jiong-Sheng Li

Ranks and inertias of Hermitian block Toeplitz matrices
Jerome Dancis

Kronecker product based stability tests and performance bounds for a
class of 2D continuous-discrete linear systems
E. Rogers and D. H. Owens

Transformation techniques towards the factorization of non-rational 2
x 2 matrix functions   Torsten Ehrhardt and Frank-Olme Speck

Global stabilizability of uncertain systems with time-varying delays
via dynamic observer-based output feedback   Yeong-Jeu Sun

On a bitangential interpolation problem for contractive-valued
functions on the unit ball
Joseph A. Ball and Vladimir Bolotnikov

On the congruence of square real matrices
Dragomir . Dokovi and Khakim D. Ikramov

The symmetric M-matrix and symmetric inverse M-matrix completion
problems   Leslie Hogben

Consistency for bi(skew)symmetric solutions to systems of generalized
Sylvester equations over a finite central algebra
Qing-Wen Wang, Jian-Hua Sun and Shang-Zhi Li

Stability of matrices with negative diagonal submatrices
Herman J. Nieuwenhuis and Lambert Schoonbeek

Matricial realizations of the solutions of the Carlson problem
Albert Compta and Josep Ferrer

Symmetry property and construction of wavelets with a general dilation
matrix   Bin Han

Cesaro limits of analytically perturbed stochastic matrices
Jerzy Filar, Henry A. Krieger and Zamir Syed

On matrices which have signed null-spaces
Si-Ju Kim and Bryan L. Shader

On comparison of the Perron-Frobenius eigenvalues of two ML-matrices
Bo Henry Lindqvist

The generic canonical form of a regular structured matrix pencil
J. W. van der Woude

Schur complements and its applications to symmetric nonnegative and
Z-matrices   Yizheng Fan

Special Issue on Order Reduction of Large Scale Systems

Special Issue in honor of Peter Lancaster

Special Issue on Linear Algebra in Signal and Image Processing

Special issue on Large Scale Linear and Nonlinear Eigenvalue Problems,

This issue is now available on ScienceDirect:
  http://www.sciencedirect.com/science/issue/5653-2002-996469998-329855

Submitted by:
Hans Schneider   hans@math.wisc.edu.
Department of Mathematics   608-262-1402 (Work)
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480 Lincoln Drive   608-263-8891 (Work FAX)
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------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
     New Book: Inverse Engineering Handbook
     New Book: Lyapunov-Schmidt Methods in Nonlinear Analysis
       SIAM Conference: Mathematics for Industry
       Student Travel Grants: Symposium on Discrete Algorithms
     Special Issue: Linear Algebra and Its Applications
     Table of Contents: Inverse Problems
     Table of Contents: Inverse Problems in Engineering
     Table of Contents: Mathematics of Control, Signals, and Systems
     Table of Contents: Linear Algebra and Its Applications

Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: "Keith A. Woodbury" <woodbury@me.ua.edu>
Subject: Inverse Engineering Handbook
Date: Thu, 5 Sep 2002

Announcing a new reference volume for Inverse Methods..

The Inverse Engineering Handbook is slated to be released by CRC Press
at the end of September, 2002. This reference contains contributions
from several noted contributors to the field:

     James V. Beck
     Keith A. Woodbury
     Yvon Jarny
     Diego Murio
     George Dulikravich & Thomas Martin
     Ashley Emery
     Alexey Nenarokomov

Please look to the URL

http://www.crcpress.com/shopping_cart/products/product_detail.asp?sku=086
1&parent_id=392&pc for more information.

There is also a brochure (.pdf) at
  http://www.crcpress.com/us/promotions/dynamic_data/2126_1023_0861FL.pdf

----
From: "Denis Sidorov" <dsidorov@mee.tcd.ie>
Subject: New book on Lyapunov-Schmidt Methods in Nonlinear Analysis
Date: Tue, 17 Sep 2002

Lyapunov-Schmidt Methods in Nonlinear Analysis and Applications, by
 Nikolay Sidorov
    Dept. of Mathematical Analysis, Irkutsk State University, Russia
 Boris Loginov

     Ulyanovosk State Technical University, Russia
 Aleksandr Sinitsyn
 Michail Falaleev
     Dept. of Mathematical Analysis, Irkutsk State University, Russia

Book Series: MATHEMATICS AND ITS APPLICATIONS : Volume 550

This book concentrates on the branching solutions of nonlinear
operator equations and the theory of degenerate operator-differential
equations especially applicable to algorithmic analysis and nonlinear
PDE's in mechanics and mathematical physics.

The authors expound the recent result on the generalized eigen-value
problem, the perturbation method, Schmidt's pseudo-inversion for
regularization of linear and nonlinear problems in the branching
theory and group methods in bifurcation theory. The book covers
regular iterative methods in a neighborhood of branch points and the
theory of differential-operator equations with a non-invertible
operator in the main expression is constructed. Various recent results
on theorems of existence are given including asymptotic, approximate
and group methods.

The reduction of some mathematics, physics and mechanics problems
(capillary-gravity surface wave theory, phase transitions theory,
Andronov-Hopf bifurcation, boundary-value problems for the
Vlasov-Maxwell system, filtration, magnetic insulation) to operator
equations gives rich opportunities for creation and application of
stated common methods for which existence theorems and the bifurcation
of solutions for these applications are investigated.

Audience: The book will be of interest to mathematicians, mechanics,
physicists and engineers interested in nonlinear equations and
applications to nonlinear and singular systems as well as to
researchers and students of these topics.

Kluwer Academic Publishers, Dordrecht
Hardbound, ISBN 1-4020-0941-0
November 2002 , 566 pp.
EUR 174.00 / USD 160.00 / GBP 110.00

From: Kirsten Wilden <wilden@siam.org>
Subject: SIAM Conference on Mathematics for Industry
Date: Wed, 11 Sep 2002

Conference Name: SIAM Conference on Mathematics for Industry:
            Challenges and Frontiers (MI03)

Location: The Metropolitan Hotel, Toronto, Canada

Dates: June 23-25, 2003

The Call for Presentations for this conference is available at:
        http://www.siam.org/meetings/mi03/

                    Deadlines
Deadline for submission of minisymposium proposals: November 26, 2002
Deadline for minisymposium speaker abstracts: December 23, 2002
Deadline for submission of contributed abstracts: December 23, 2002

For additional information, contact SIAM Conference Department at
     meetings@siam.org.

From: Alia Rizk <rizk@siam.org>
Subject: IBM Research Sponsors Student Travel Grants to SODA 03
Date: Mon, 23 Sep 2002

IBM Research Sponsors Student Travel Grants to the ACM/SIAM Symposium
on Discrete Algorithms (SODA 03)

10 grants are available. Program information for SODA 03 is
available at http://www.siam.org/meetings/da03/index.htm

Award:
Ten awards of $500 each will be granted toward travel to SODA 03.

To Qualify:
Any full-time student in good standing is eligible to receive an award
plus gratis meeting registration. Top priority will be given to
students presenting papers at the meeting, with second priority to
students who are co-authors of papers to be presented at the
meetings. An application for a travel award must include:

1. A letter from the student describing his/her academic standing and
   interests, his/her expected graduation date and degree, advisor's
   name, and, if available, a URL for a working Web page.
2. If applicable, the title(s) of the paper(s) to be presented by the
   student (author or co-author) at the meeting.
3. A detailed expense list, in US dollars.
4. Other travel funds that are available to you (optional).
5. Statement from your advisor on availability of funds, indicating
   why the student is deserving of receiving a travel fund, and any
   special circumstances.

Deadlines:
Complete applications must be received at the SIAM office no later than
Nov. 12, 2002.   Winner will be notified by December 6, 2002. Checks
for the awards will be given to the winning students when they arrive
at the meeting and check in at the SIAM Registration Desk.

Selection:
A SIAM committee will select the awardees. The tentative list of winners
will be submitted to IBM Research for approval.

Applications should be sent to the following address:
     SIAM
     Attention: Joanna Littleton
     IBM Research Student Travel Award, SODA 03
     3600 University City Science Center
     Philadelphia, PA 19104-2688.

Students also may apply by e-mail to littleton@siam.org or by fax to
215-386-7999.

From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA special issue
Date: Wed, 11 Sep 2002

LINEAR ALGEBRA AND ITS APPLICATIONS
Special Issue in honor of Heydar Radjavi

Linear Algebra and its Applications is pleased to announce a special issue in honor of Professor Heydar Radjavi, in recognition of his many important contributions to linear algebra and to operator theory, and in celebration of his 70th birthday on January 17, 2005.

Heydar's early results include his seminal characterization of self-commutators of operators on Hilbert space. His definitive trace condition for simultaneous triangularizability of semigroups of matrices was the culmination of work on this topic by several generations of distinguished algebraists. Heydar has obtained numerous other results of broad interest on invariant subspaces, simultaneous triangularizability, products of involutions, semigroups of matrices and many other topics. As he approaches 70, his research productivity is increasing with his age. It is hoped that this special issue will reflect the breadth and influence of his research.

Papers on any aspect of linear algebra or operator theory may be submitted to any of the four special editors listed below before July 31, 2003. Submissions will be subject to the normal refereeing procedures and standards of LAA.

Rajendra Bhatia   Peter Rosenthal
Indian Statistical Institute   Department of Mathematics
7 Sansanwal Marg   University of Toronto
New Delhi 110 016   Toronto, Ontario M5S 3G3
India   Canada
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rbh@isid.ac.in   rosent@math.toronto.edu

Matjaz Omladic   Peter Semrl
Department of Mathematics   Department of Mathematics
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Slovenia   Slovenia
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matjaz.omladic@fmf.uni-lj.si   peter.semrl@fmf.uni-lj.si

Submitted by:
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480 Lincoln Drive   608-263-8891 (Work FAX)
University of Wisconsin-Madison   No Home FAX at present
Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)

All articles are free for 30 days after publication on the web. This issue is available at:
     http://stacks.iop.org/0266-5611/18/i=5

PAPERS

An information approach to regularization parameter selection under model misspecification
A M Urmanov, A V Gribok, J W Hines and R E Uhrig

On the solution of three-dimensional inverse obstacle acoustic scattering problems by a regularized Newton method
C Farhat, R Tezaur and R Djellouli

Imaging and time reversal in random media
L Borcea, G Papanicolaou, C Tsogka and J Berryman

Extraction formulae for an inverse boundary value problem for the equation $\nabla \cdot (\sigma-{\rm i}\omega \epsilon)\nabla u=0$
M Ikehata

An interior-point trust-region-based method for large-scale non-negative regularization   M Rojas and T Steihaug

Integrable discretizations of the sine--Gordon equation
M Boiti, F Pempinelli, B Prinari and A Spire

Unique determination of inhomogeneity in an elliptic equation
S Kim

Detecting cavities by electrostatic boundary measurements
G Alessandrini, A Morassi and E Rosset

Conservation laws for the nonlinear Schr\"odinger equation in Miwa variables   G M Pritula and V E Vekslerchik

Inversion of scattering from a layer of random spheroids using iterative solutions of the scalar radiative transfer equation
Y-Q Jin and Z Liang

The solvability conditions for the inverse eigenvalue problem of Hermitian-generalized Hamiltonian matrices
Z Zhang, X Hu and L Zhang

Reconstruction of a stratified omega medium and the associated Riemann--Hilbert problem   A Boutet de Monvel and D Shepelsky

Penalized maximum likelihood image restoration with positivity constraints: multiplicative algorithms
H Lant\'eri, M Roche and C Aime

An inverse problem for the magnetic Schr\"odinger equation and quasi-exponential solutions of nonsmooth partial differential equations   A Panchenko

The inverse problem of emission tomography   D Gourion and D Noll

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Mathematics of Control, Signals, and Systems   2002   Vol. 15, No. 3

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Decay rates for a beam with pointwise force and moment feedback
K. Ammari, Z. Liu and M. Tucsnak

Poincare, normal form for a class of driftless systems in a
one-dimensional submanifold neighborhood
D. Boutat and J.P. Barbot

NEW!
The tables of contents of MCSS and the .pdf files of its papers
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Information on MCSS is available also at the Editors' home pages:
www.cwi.nl/~schuppen/mcss/mcss.html
www.math.rutgers.edu/~sontag/mcss.html

Address for submissions by email or regular mail:
J.H. van Schuppen (Editor-in-Chief MCSS)
CWI
P.O.Box 94079
1090 GB Amsterdam
The Netherlands
Email mcss@cwi.nl

Eduardo Sontag and Jan van Schuppen (Editors)

Submitted by:
Corry Magrijn (Secretary) for Jan H. van Schuppen (Editor-in-Chief
MCSS)

From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA contents
Date: Sat, 7 Sep 2002

Linear Algebra and its Applications   October 2002 Vol 354, Issues 1-3
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        Ninth Special issue on Linear Algebra and Statistics
        Special editors: S. Puntanen, G.P.H. Styan, H.J. Werner

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A property of orthogonal projectors
Jerzy K. Baksalary, Oskar Maria Baksalary and Tomasz Szulc

Generalized inverses of partitioned matrices in Banachiewicz-Schur
form   Jerzy K. Baksalary and George P. H. Styan

A complementary proof of an eigenvalue property in correspondence

analysis   J. Benasseni

Multi-companion matrices   Georgi N. Boshnakov

Methods of density estimation on the Grassmann manifold
Yasuko Chikuse

Operator trigonometry of statistics and econometrics
Karl Gustafson

Several inequalities involving Khatri-Rao products of positive
semidefinite matrices   Shuangzhe Liu

Admissible linear estimators in linear models with respect to
inequality constraints   Chang-Yu Lu and Ning-Zhong Shi

Estimation and experiments comparison with respect to the matrix risk
Augustyn Markiewicz

Third and fourth moment matrices of vec X' in multivariate analysis
Heinz Neudecker and Gotz Trenkler

The 70th anniversary of the distribution of random matrices: A survey
Ingram Olkin

The asymptotic variance of the univariate PLS estimator
A. Phatak, P. M. Reilly and A. Penlidis

Regression models with unknown singular covariance matrix
Muni S. Srivastava and Dietrich von Rosen

Convergence in the Cesaro sense and strong law of large numbers for
nonhomogeneous Markov chains   Weiguo Yang

http://www.sciencedirect.com/science/issue/5653-2002-996459998-336498

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Small polynomial matrix presentations of nonnegative matrices
Mike Boyle and Douglas Lind

Matrices with doubly signed generalized inverses
Jia-Yu Shao and Jin-Ling He

The (matrix) discriminant as a determinant   Beresford N. Parlett

Additive idempotence preservers   B. Kuzma

Gaussian quadrature formulae for matrix weights

Antonio J. Duran and Beatriz Polo

Decomposition of Riesz frames and wavelets into a finite union of
linearly independent sets   Ole Christensen and Alexander M. Lindner

On Grassmannians over *-rings
Marek Golasiski and Francisco Gomez Ruiz

Multiplicative preservers on semigroups of matrices
Wai-Shun Cheung, Shaun Fallat and Chi-Kwong Li

Upper and lower bounds for ranks of matrix expressions using
generalized inverses   Yongge Tian

Construction of irreducible relative invariant of the prehomogeneous
vector space   Katsutoshi Amano, Masaki Fujigami and Takeyoshi Kogiso

Perturbation of quadrics
Josep Clotet, M. Dolors Magret and Xavier Puerta

Integral Jordan decomposition of matrices
Inder Bir S. Passi, Klaus W. Roggenkamp and Marcos Soriano

Ranks of tensors, secant varieties of Segre varieties and fat points
M. V. Catalisano, A. V. Geramita and A. Gimigliano

Sharp upper bounds for the Laplacian graph eigenvalues
Yong-Liang Pan

Stability and inertia theorems for generalized Lyapunov equations
Tatjana Stykel

Submitted by:
Hans Schneider   hans@math.wisc.edu.
Department of Mathematics   608-262-1402 (Work)
Van Vleck Hall   608-271-7252 (Home)
480 Lincoln Drive   608-263-8891 (Work FAX)
University of Wisconsin-Madison   No Home FAX at present
Madison WI 53706 USA   http://www.math.wisc.edu/~hans (URL)
------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
     New book: Computational Methods for Inverse Problems
     Lectures on Inverse Problems in Financial Modeling
     SIAM Conference: Applied Linear Algebra
     International Conference: Wavelets and Applications
     PhD Assistantship in Computational Math / Inverse Problems
     Tenure-track position at UMBC
     Special Issues: Linear Algebra and Its Applications

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Information about IPNet:
     http://www.mth.msu.edu/ipnet
     Mail to ipnet-request@math.msu.edu

From: ipowner@math.msu.edu
Subject: New book: Computational Methods for Inverse Problems
Date: Wed, 9 Oct 2002

New Book: Computational Methods for Inverse Problems, by Curtis R. Vogel

In the SIAM series: Frontiers in Applied Mathematics

Inverse problems arise in a number of important practical
applications, ranging from biomedical imaging to seismic
prospecting. This book provides the reader with a basic understanding
of both the underlying mathematics and the computational methods used
to solve inverse problems. It also addresses specialized topics like
image reconstruction, parameter identification, total variation
methods, nonnegativity constraints, and regularization parameter
selection methods.

Because inverse problems typically involve the estimation of certain
quantities based on indirect measurements, the estimation process is
often ill-posed. Regularization methods, which have been developed to
deal with this ill-posedness, are carefully explained in the early
chapters of Computational Methods for Inverse Problems. The book also
integrates mathematical and statistical theory with applications and
practical computational methods, including topics like maximum
likelihood estimation and Bayesian estimation.

Several web-based resources are available to make this monograph
interactive, including a collection of MATLAB m-files used to generate
many of the examples and figures. These resources enable readers to
conduct their own computational experiments in order to gain
insight. They also provide templates for the implementation of
regularization methods and numerical solution techniques for other
inverse problems. Moreover, they include some realistic test problems
to be used to further develop and test various numerical methods.

Audience

Computational Methods for Inverse Problems is intended for graduate
students and researchers in applied mathematics, engineering, and the
physical sciences who may encounter inverse problems in their work.

Contents

Preface; Chapter 1: Introduction; Chapter 2: Analytical Tools; Chapter
3: Numerical Optimization Tools; Chapter 4: Statistical Estimation
Theory; Chapter 5: Image Deblurring; Chapter 6: Parameter
Identification; Chapter 7: Regularization Parameter Selection Methods;
Chapter 8: Total Variation Regularization; Chapter 9: Nonnegativity
Constraints; Bibliography; Index.

2002 / xvi + 183 pages / Hardcover / ISBN 0-89871-507-5
List Price $56.00 / SIAM Member Price $39.20 / Order Code FR23

From: frontieres.finance@laposte.net
Subject: Lectures on Inverse Problems in Financial Modeling
Date: Mon, 14 Oct 2002

The Center for Applied Statistics and Economics
at Humboldt University, Berlin will host
a series of lectures on

Inverse Problems in Financial Modeling

by : Rama CONT (CNRS - Ecole Polytechnique, France)

5 - 7 February 2003

For details:

http://ise.wiwi.hu-berlin.de/~blaskow/seminarfeb03.htm

From: Darrell Ross <ross@siam.org>
Subject: SIAM Conference: Applied Linear Algebra
Date: Thu, 03 Oct 2002

The Eighth SIAM Conference on Applied Linear Algebra is now accepting
submissions for participation!

About the Conference
The Eighth SIAM Conference on Applied Linear Algebra is the latest in
a successful series of meetings that began in Raleigh more than 20
years ago. The meeting is being organized in cooperation with the
International Linear Algebra Society (ILAS) and covers a wide and
inclusive range of topics in applied and core linear algebra, as well
as applications, both emerging and established.

Meeting Themes
Meeting themes include, but are not limited to:

Core Linear Algebra:

     * Indefinite inner products
     * Matrix inequalities
     * Kronecker products
     * Symbolic computations

* Graphs and matrices

Numerical Linear Algebra:

        * Large-scale eigenvalue problems
        * Optimization
        * Polynomial eigenvalue problems
        * Foundations of computational mathematics
        * Lattice QCD calculations

Linear Algebra and its applications in:

        * Information retrieval
        * Computational biomedicine
        * Dynamical systems
        * Quantum information
        * Systems and control
        * Image processing

For details please visit:

http://www.siam.org/meetings/la03/

Deadlines for submissions are...

Deadline for submission of minisymposium proposals: 12/16/02
Deadline for submission of minisymposium speakers' abstracts: 1/13/03
Deadline for submission of contributed abstracts for posters or
lectures: 1/13/03

Submitted by: Darrell Ross
SIAM, Conference Program Manager
Conference Web Master

From: jpli2222 <jpli2222@sina.com>
Subject: International Conference: Wavelets and Applications
Date: Mon, 21 Oct 2002

The 3rd International Conference on Wavelet Analysis and Its
Applications (ICWAA¡¯03) will be held in Chongqing, the People¡¯s
Republic of China on May 29-31, 2003.

This conference will bring together researchers, as well as people and
organizations interested in wavelet theory and its applications, to
exchange ideas and report progress in this important and exciting area
of research and development. Please visit the website of ICWAA¡¯03
below for details:

http://www.hqgc.net/icc2003/
http://www.hqgc.net/icwaa2003/

Chongqing, a well-known mountainous city, is located at the confluence
of the Yangtze and Jialing rivers in southwest China. It has become
the fourth municipality under the Central Government since 1997. It
has jurisdiction over 42 districts, municipalities and counties and
covers an area of 82 square kilometer, with a population of 30.02
million. Chongqing is an attractive tourist city. There are
world-famous Dazu Stone carvings in the west and Three Gorges of
Yangtze River in the east.

Please feel free to contact us if you have any problem.

We are looking forward to seeing you in Chongqing!

Yuan Y. Tang
General Chair, the ICWAA¡¯03
Professor, Hong Kong Baptist University
Email: yytang@comp.hkbu.edu.hk

Jian Ping Li
Chair, the Program Committee of ICWAA¡¯03
Professor, Logistical Engineering University
Email: jpli2222@sina.com, jpli2222@yahoo.com

From: Luc Gilles <lgilles@mtu.edu>
Subject: PhD Assistantship in Computational Math (incl. Inverse Problems)
Date: Fri, 4 Oct 2002

A full-time graduate research assistantship in the Electrical and
Computer Engineering Department, Michigan Technological University,
Michigan, is available starting Fall 2002, to do a PhD under
supervision of Pr.L.Gilles on Analysis, Modeling Tools and Simulation
of Advanced Control Algorithms for Adaptive Optics on Future Giant
Telescopes. Work will be in close collaboration with Dr. B.Ellerbroek,
Gemini observatory (Hawaii) and Pr. C.Vogel, Dpt. of Mathematics,
Montana State University. Some level of collaboration with Pr. Dekany
(Astro, Caltech) and LLNL is also expected. Applicants should have a
master in Adaptive Optics, Control, Computational Mathematics
(multiscale algorithms, inverse problems, optimization) or related
field. Applications by email to Pr. L.Gilles, lgilles@mtu.edu.

 ---US citizens or permanent residents--- are strongly encouraged to
apply
 for an NSF Graduate Research Fellowship, DEADLINE NOV. 7 2002!!!
 (www.orau.org/nsf/nsffel.htm)

Submitted by:
Pr. Luc Gilles
Michigan Technological University
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1400 Townsend Drive
Houghton, Michigan 49931-1295
Ph : (906) - 487 2513
Fax: (906) - 487 2949
http://www.ece.mtu.edu/ee/faculty/lgilles/

From: "Thomas I. Seidman" <seidman@math.umbc.edu>
Subject: Tenure-track position at UMBC
Date: Fri, 4 Oct 2002

The Department of Mathematics and Statistics at UMBC (University of
Maryland Baltimore County) invites applications for a tenure-track
faculty position in Mathematical Sciences at the rank of Assistant
Professor, starting in the Fall of 2003, pending funding
availability. For further information about UMBC and the Department,
please access the department's web site at http://www.math.umbc.edu

The successful candidate should have a Ph.D. in mathematics or a related field, have an active, independent research program, strong potential for obtaining external funding, and a commitment to excellence in teaching. Preference will be given to candidates who are able to conduct interdisciplinary research, as well as those able to interact with existing groups in the Department. [Current research areas represented in the Department include differential equations, numerical analysis, optimization, systems theory, stochastic processes, and mathematical modeling.]

Applicants should send a vita and a summary of their current research program, and have three letters of reference sent to:
  Mathematics Recruitment Committee,
  Department of Mathematics and Statistics,
  University of Maryland Baltimore County,
  Baltimore, MD 21250.
Screening of applicants will commence December 1, 2002, and will continue until the position is filled.

Submitted by:
Prof. Thomas I. Seidman   <seidman@math.umbc.edu>
UMBC --- Dept. Math/Stat   http://www.math.umbc.edu/~seidman
Baltimore, MD 21250
(1-410)-455-2438 [FAX: -1066]

From: Hans Schneider <hans@math.wisc.edu>
Subject: Special Issues: Linear Algebra and Its Applications
Date: Tue, 15 Oct 2002

LINEAR ALGEBRA AND ITS APPLICATIONS
Special issue on Positivity in Linear Algebra

Call for papers

Positivity in linear algebra arises in many different forms and flavors. It includes the study of matrices with nonnegative entries (Perron-Frobenius theory), matrices with positive principle minors (P-matrices, positive definite matrices, totally positive matrices), as well as linear maps with characteristics that generalize or combine these notions of positivity (e.g., positive operators, cone preserving maps).

The applications of positivity as a linear algebraic notion are indeed numerous, ranging from the physical and social sciences to other mathematical areas like graph theory, optimization, stochastic processes, statistics, dynamical systems and numerical analysis. The benefit is mutual as many advances in these areas are being achieved with the aid of linear algebra and its notions of positivity, which in turn are enriched by ideas, challenges and goals for the future.

For this special issue, we are looking for papers that primarily advance knowledge about positivity in linear algebra and the associated matrix classes, or that extend the reach of their theory in applications and in other mathematical fields.

Areas and topics of interest include, but are not limited to the following:

  Entrywise positive (nonnegative) matrices.

M-matrices and their inverses.
Eventually nonnegative matrices.
Positive (semi-)definite matrices.
Totally positive (nonnegative) matrices.
P-matrices.
Cone preserving maps.
Positive stability.
Generalizations of the above in the context of operator theory
   and matrix functions.

All papers submitted must meet the publication standards of Linear
Algebra and its Applications and will be refereed in the usual
way. They should be submitted to one of the special editors of this
issue listed below by 31 August 2003.

Shaun Fallat   Judith McDonald
Department of Mathematics   Mathematics Department
University of Regina   Washington State University
Regina, Saskatchewan   Pullman, WA 99164-3113
Canada S4S 0A2   U.S.A.
sfallat@math.uregina.ca   jmcdonald@math.wsu.edu

Juan Pena   Michael Tsatsomeros
Departamento de Matematica Aplicada   Mathematics Department
Universidad de Zaragoza   Washington State University
Edificio de Matematicas   Pullman, WA 99164-3113
50009 Zaragosa, Spain   U.S.A.
jmpena@posta.unizar.es   tsat@math.wsu.edu

LINEAR ALGEBRA AND ITS APPLICATIONS
Special Issue in honor of Graciano de Oliveira

Linear Algebra and its Applications is pleased to announce a special
issue in honor of Professor Graciano de Oliveira in recognition of his
many important contributions to linear algebra and his influential
role in the development of linear algebra, especially in Portugal, and
on the occasion of his retirement from the Universidade de Coimbra.

The deadline for submisson of papers is October 1, 2003. We solicit
papers for the special issue within the scope of LAA or research
interests of Graciano de Oliveira. Papers for submission should be sent
to any of the five special editors, and will be subject to normal
refereeing procedures according to LAA standards:

Jose Dias da Silva
Centro de Algebra de
 Universidade de Lisboa
Av. Prof. Gama Pinto 2
1699 Lisboa Code, Portugal
perdigao@fc.ul.pt

Eduardo Marques de Sa
Departmento de Mathematica
Apt. 3008, Universidade de Coimbra
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Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
        Fourth International Conference on Inverse Problems in Russia
        SIAM Conference on Mathematics for Industry
        SIAM Conference on the Geosciences
      ETNA Conference on Numerical Analysis
      Postdoc Positions in Inverse Problems, Interdisciplinary Fields
      PhD Position: Research on Intelligent Scanners
        SIAM Student Memberships Available
        Special Issue: Linear Algebra and Its Applications
      Table of Contents: Inverse Problems
      Table of Contents: Inverse Problems in Engineering
      Table of Contents: Linear Algebra and Its Applications

Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: "4invp" <4invp@cosmos.com.ru>
Subject: 4th Int'l Conf. Inverse Problems: Identification, Design and
Control
Date: Wed, 20 Nov 2002

FIRST CALL FOR PAPERS

Fourth International Conference
INVERSE PROBLEMS: IDENTIFICATION, DESIGN AND CONTROL

July 2 - July 6, 2003
Boat cruise Moscow - Kostroma - Moscow by Volga river, RUSSIA

Organized by:
Russian Scientific Society "Inverse problems in Engineering"
Moscow State Aviation Institute (MAI)
Moscow State University (MGU)
Bauman Moscow State Technical University (BMGTU)
International Center for Advanced Studies "Cosmos"

Objectives:

Following the successful first, second and third conferences in this
series (held in Suzdal (1990), in St.Petersburg (1994) and boat cruise
Moscow-St.Petersburg (1998)) the aim of this Fourth International
Conference is to bring together the scientists and engineers involved
in inverse problems research and to provide a relaxed atmosphere for
in-depth discussion of the types of inverse problems, which occur in
engineering practice. At the final meeting (June 5, 1998)
participants of Third Conference had decided to rename the future
conferences from "Dynamic System Identification and Inverse Problems"
to "Inverse Problems: Identification, Design And Control".

The Identification, Design and Control problems dealing with unknown boundary and initial conditions, sizes and shapes of domains, physical properties of the media, governing systems of equations, and internal and boundary sources in the multidisciplinary fields involving thermodynamics, heat transfer, fluid mechanics, strength of materials, structural dynamics, electro-magnetics, and nuclear systems are all of interest and are welcome at this conference. Methods of interest include also efficient and robust numerical techniques (including optimization) that are being applied to cope with a wide variety of identifications problems. The behavior of numerical algorithms for the solution of these extremely conditioned problems and their critical evaluation by comparison with experiments or established benchmarks are highly desired. The conference is of importance to all scientists and engineers who are actively involved in developing innovative theoretical approaches as well as in solving practical industrial problems. The International Scientific Advisory Committee members anticipate that the conference will point out new directions in the identification of mathematical models, design of technical systems and control of dynamic processes.

Conference Themes:
The topics listed below should give only a general guideline for possible contributions. Papers on other topics connected with other Inverse Problems will also be considered if they fall within the objectives of the conference.

Heat Conduction
Thermal Radiation
Diffusion-Convection
Thermal Processes in Porous Media
Thermal Processes in Composites
Phase Change Processes
Fire and Combustion
Thermal Stability
Vibrations and Structural Dynamics
Acustics
Electromagnetics
Materials Processing
Elasticity, Thermoelasticity, and Elasto-Plasticity
Tomography and Inverse Scattering
Gas-Liquid Flows
Mechanics of Solids
Nuclear Transport
Optimal Experiments Design
Analysis of Experimental Data, Signal and Noise Processing.

Mini-Exhibition:
There will be a small table-top exhibition of publications, hardware and software relevant to the conference themes. For more information please express your interest on the attached inquiry form.

Short Course:
Short Course on Inverse Problems in Engineering and Natural Sciences is planned during the Conference (every evening two keynote lectures). The Short Course will be sponsored by the Ministry of Education of Russia and it is free of charge for students and young scientists.

Time Schedule:
As soon as possible - Return the reply form by FAX or E-mail.
December 31, 2002 - Submit abstracts (300 words) to the Secretariat.

January 31, 2002 - Preliminary acceptance notification to authors. February 28, 2002 - Submit .pdf version of the full paper to the Secretariat for review. April 15, 1998 - Final acceptance notification to authors. May 15, 1998 - Submit final camera-ready version of the full paper for the book of proceedings.

Abstracts, papers and presentations should be in English.. Authors of the accepted manuscripts are invited to submit their final papers for review and possible publication in the international journal on Inverse Problems in Engineering (IPE).

Registration Fees:

(Includes Conference proceedings, other documentation, refreshments and conference dinner)
Authors, Session Chairmen, Members of the Scientific Advisory
        Committee: $300
All other participants: $350
Students (a letter from a faculty member certifying student status is
        required): $50
Guests: $40

Accommodation, Tours and Social Events :

The riverboat cruise Moscow - Kostroma - Moscow by Volga river is one of the most popular summer vacation tours in Russia, and well known in Europe and USA. It offers outstanding atmosphere for both relaxation and excitement. The "Borodino" is a two-deck riverboat for 85 passengers with two restaurants, a sauna, a bar, two conference rooms, etc. Several historical sites are located lose by the river and will be visited, including Uglich (the town where the last son of Ivan the Terrible was killed), Yaroslavl (the largest city on upper Volga with a lot of historical and architectural sightings), Kostroma (the original place of Romanov's Dynasty), Myshkin and Plyos (two beautiful smoll provincial town). Also pre-conference tour and post-conference tour in Moscow can be arranged for interested parties. All reservations for the riverboat will be made through the Conference Secretariat.

[This news item has been shortened considerably. Please see the full news item at:

http://www.math.msu.edu/ipnet/ipnet_archive/digest_appendices/Appendix_to _Digest_v9n11/

-Ed.]

From: Kirsten Wilden <wilden@siam.org>
Subject: SIAM Conference on Mathematics for Industry
Date: Wed, 06 Nov 2002

Subject: SIAM Conference on Mathematics for Industry: Challenges and
        Frontiers (MI03)

Location: The Metropolitan Hotel, Toronto, Canada

Dates: June 23-25, 2003

The Call for Presentations for this conference is available at:
        http://www.siam.org/meetings/mi03/

                        Deadlines

Deadline for submission of minisymposium proposals: November 26, 2002
Deadline for minisymposium speaker abstracts: December 23, 2002
Deadline for submission of contributed abstracts: December 23, 2002

For additional information, contact SIAM Conference Department at
        meetings@siam.org.

From: Kirsten Wilden <wilden@siam.org>
To: ipnet
Subject: Please Post- SIAM Conference on the Geosciences (GS03)
Date: Fri, 01 Nov 2002

Subject: SIAM Conference on Mathematical and Computational Issues in
        the Geosciences

Conference Name: SIAM Conference on Mathematical and Computational
        Issues in the Geosciences (SIAG/GS)   (GS03)

Location: Radisson Hotel and Suites Austin, Austin, Texas

Dates: March 17-20, 2003

The Conference Program is now available at
              http://www.siam.org/meetings/gs03/.

For additional information, contact SIAM Conference Department at
meetings@siam.org.

From: Lothar Reichel <reichel@mcs.kent.edu>
Subject: ETNA conference
Date: Fri, 29 Nov 2002

On the occasion of the 10th birthday of the Electronic Journal on
Numerical Analysis (ETNA), the conference

        "ETNA: Following the flows of Numerical Analysis"

will be held in Kent, OH, May 29-31, 2003. The meeting, in the
tradition of past Kent numerical analysis conferences, will give
participants an opportunity to present their work and to interact in a
friendly and relaxed atmosphere.

A web site for the conference, including a list of participants, is
under construction. It can be found at

        http://lanczos.cwru.edu/~etna10

Please send e-mail to dxc57@po.cwru.edu or reichel@math.kent.edu if you
are interested in participating in the conference.

    Daniela Calvetti and   Lothar Reichel

on behalf of the organizing committee.

ETNA is available on the web at http://etna.mcs.kent.edu as well as on
CDROM.

From: "Prof. Heinz W. Engl" <engl@indmath.uni-linz.ac.at>
Subject: Postdoc positions
Date: Sat, 23 Nov 2002

        Postdoc and Senior Postdoc (Group Leader) Positions
                            at the
 Johann Radon Institute for Computational and Applied Mathematics
                          (RICAM)
         of the Austrian Academy of Sciences, Austria

RICAM is a research institute going into operation on January 1, 2003,
and will be gradually built up to a total of 25 postdoc positions in
five areas:

  Scientific Computing - Computational Methods for Direct Field Problems
  (Prof.Ulrich Langer, langer@numa.uni-linz.ac.at)

  Scientific Computing - Inverse Problems (Prof.Heinz Engl,
  engl@indmath.uni-linz.ac.at)

  Symbolic Computation (Prof.Bruno Buchberger,
  bruno.buchberger@risc.uni-linz.ac.at)

  Analysis of Partial Differential Equations (Prof.Peter Markowich,
  peter.markowich@univie.ac.at)

  Financial Mathematics (Prof.Gerhard Larcher, gerhard.larcher@jku.at;
  Prof.Walter Schachermayer, wschach@fam.tuwien.ac.at).

In addition to ongoing research, which will be partly
interdisciplinary between the areas mentioned, there will be an
international visitors' program in the form of special semesters on
application fields.

The institute will be housed on the campus of the Johannes Kepler
Universität in Linz, a town of about 200.000 on the Danube, very close
to the Austrian Alps, and half-way between Vienna and Salzburg.

We are looking for PostDocs with a strong interest in one of the
fields above, who are also willing to work in an interdiscplinary
environment; doctorate in mathematics or a closely related field
required. In addition, we are also looking for Senior Postdocs, who
could lead a group and would also be expected to attract additional
funding; they should have a substantial publication record beyond the
doctorate. The working language will be English. The positions are
initially for up to three years, one renewal for three more years is
possible depending on achievement.

Please send applications with personal and scientific data, copies of
relevant documents and a statement about scientific interests and
achievements to

Prof. Heinz W. Engl
Director, RICAM
Austrian Academy of Sciences

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c/o Kepler University
A-4040 Linz
Austria


and a copy to the area leader in whose group you want to work. There
is no deadline, the announcement remains open until all positions are
filled; we expect to be able to fill the first position on March 1,
2003.


Submitted by:
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               World Wide Web:  http://www.indmath.uni-linz.ac.at/


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From: "Haar Romenij, B.M. ter" <B.M.terhaarRomeny@tue.nl>
Subject: Job announcement
Date: Wed, 6 Nov 2002


PHD Position (4 years, with salary) offered at the Eindhoven
University of Technology, Eindhoven, the Netherlands, Department of
Biomedical Engineering:


"Intelligent Scanners: multi-scale computer vision methods for retrieval
of
specified image structure, from character recognition to computer-aided
diagnosis".


The candidate this project should have a Master's degree, preferably
in computer science, mathematics or physics, proven interest in
statistical data analysis, good knowledge of mathematics and possibly
multi-scale computer vision methods. He will be part of a dynamic,
young and ambitious research group, in a modern laboratory.
Prototyping programming will be primarily done in Mathematica 4.2.


For all details and further information, see:
    http://www.bmt.tue.nl/jobs.htm  <http://www.bmt.tue.nl/jobs.htm>
"Intelligent Scanners".


Prof. Bart M. ter Haar Romeny
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URL: http://www.bmi2.bmt.tue.nl/image-analysis
      <http://www.bmi2.bmt.tue.nl/image-analysis>
URL: http://www.bmt.tue.nl/imaging/people/bart/index.html
      <http://www.bmt.tue.nl/imaging/people/bart/index.html>


Submitted by:
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```

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From: michelle montgomery <montgomery@siam.org>
Subject: Free SIAM Student Memberships Available
Date: Mon, 11 Nov 2002

Are you a graduate student attending one of SIAM's Academic Member
institutions? If so, it's easy to apply for your FREE SIAM
membership. Click here or paste this url into your browser to see if
your school is an academic member of SIAM:

    www.siam.org/membership/acadlist.htm

Your free membership benefits include a print subscription to SIAM
News, an electronic only subscription to SIAM Review, and one SIAM
activity group membership. For complete information and to apply,
click here or paste this url to your browser:

    www.siam.org/membership/student2003.htm

SIAM is a professional membership society dedicated to advancing
science, engineering, industry, and society by the application of
mathematics and computational science; promoting research to lead to
effective new methods and techniques; and providing media for the
exchange of information between these groups (www.siam.org).

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about free student memberships to your fellow graduate students in
applied mathematics and computational sciences.

Michelle Montgomery
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From: Hans Schneider <hans@math.wisc.edu>
Subject: Linear Algebra and Its Applications: Special Issue
Date: Fri, 1 Nov 2002

LINEAR ALGEBRA AND ITS APPLICATIONS

Special issue on

Determinants and the Legacy of Sir Thomas Muir

Thomas Muir was born in 1844 in Scotland, was educated at the
University of Glasgow, and died in 1934 in South Africa. His
monumental work "The Theory of Determinants in the Historical Order of
Development" in 5 volumes was published from 1890 (volume 1) to 1930
(volume 5). It covers the history of determinants from its foundation
by Leibniz (1693) and Cayley (1841) to 1920. A sixth volume was being
prepared when Muir died in 1934.

Determinants arise not only in linear algebra but in many other parts of mathematics and science, such as combinatorial enumeration, graph theory, representation theory, symmetric functions, statistics, number theory, interpolation and approximation, tilings, special function theory, statistical mechanics, and theoretical computer science. Entries of the associated matrices can vary from just 0's and 1's (or 0's, 1's and -1's) to multivariable polynomials to special functions to general functions. Matrices whose determinants are to be evaluated can be unstructured or highly structured (e.g. Laplace, Vandermonde, Hankel, Fredholm, Toeplitz).

For this special issue, we seek papers that, to name a few possibilities, advance the theory of determinants, provide special formulas for determinants, use determinants crucially in the context of solving a problem in another field, and give new application of determinants.

In editing this special issue we seek to honor the legacy of Muir as well as to showcase the central role of determinants in mathematics.

All papers submitted must meet the publication standards of Linear Algebra and its Applications and will be refereed in the usual way. They should be submitted to one of the special editors of this issue listed below by November 30, 2003.

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LETTER TO THE EDITOR

On single-photon emission computed tomography imaging based on an
exact formula for the nonuniform attenuation correction
J-P Guillement, F Jauberteau, L Kunyansky, R Novikov and R Trebossen

TOPICAL REVIEW

Electrical impedance tomography   L Borcea

PAPERS

A numerical differentiation method and its application to
reconstruction of discontinuity   Y B Wang, X Z Jia and J Cheng

Reconstruction of the Hartree-type nonlinearity   M Watanabe

Variable sinograms and redundant information in single-photon emission
computed tomography with non-uniform attenuation   E Y Sidky and X Pan

On multiple soliton solutions of some simple differential-difference
equations   C R Gilson, X-B Hu and S M Barnett

Linearized electromagnetic inversion of inhomogeneous media with
dispersion   N V Budko

Weyl-Titchmarsh matrix functions for matrix Dirac-type equations
(non-self-adjoint case)   L Sakhnovich

Uniqueness and stability in an inverse problem for the Schr\"odinger
equation   L Baudouin and J-P Puel

Explicit identification of multiple small breast cancers in an optical
mammographic imaging   S He, H Zhang and V G Romanov

On the convergence of a solution of the discrete Lotka-Volterra system
M Iwasaki and Y Nakamura

Boundary identification for an elliptic equation   F Berntsson

Mixed first- and second-order differential equations and constrained
variational calculus: an inverse problem   J Mar\'\i n-Solano

Parameter identification by a single injection-extraction well
D Constales, J Ka\v cur and R Van Keer

Determination of the convex hull of radiating or scattering systems: a
new, simple and effective approach
O M Bucci, A Capozzoli and G D'Elia

Time reversal through a solid-liquid interface and super-resolution
C Tsogka and G C Papanicolaou

Electrostatic imaging via conformal mapping   I Akduman and R Kress

The inverse scattering problem for the acoustic equation in a half-space
G Karamyan

Obstacle visualization via the factorization method for the mixed
boundary value problem   N I Grinberg

Initial-value problem of the discrete periodic Toda equation and its

ultradiscretization   T Kimijima and T Tokihiro

SPECIAL SECTION ON ELECTROMAGNETIC AND ULTRASONIC NONDESTRUCTIVE
EVALUATION:

Foreword to the special section on electromagnetic and ultrasonic
nondestructive evaluation

Linear and nonlinear inversion algorithms applied in nondestructive
evaluation
R Marklein, K Mayer, R Hannemann, T Krylow, K Balasubramanian, K J
Langenberg and V Schmitz

Time reversal techniques in ultrasonic nondestructive testing of
scattering media   C Prada, E Kerbrat, D Cassereau and M Fink

Ultrasonic flaw sizing inverse problems
L W Schmerr Jr, S-J Song and A Sedov

Ultrasonic Lamb wave tomography
K R Leonard, E V Malyarenko and M K Hinders

A new non-iterative inversion method for electrical resistance
tomography   A Tamburrino and G Rubinacci

Indentification of material damage in two-dimensional domains using
the SQUID-based nondestructive evaluation system
H T Banks and F Kojima

Eddy-current evaluation of three-dimensional defects in a metal plate
D Dos Reis, M Lambert and D Lesselier

Eddy-current evaluation of three-dimensional flaws in flat conductive
materials using a Bayesian approach   D Pr\'emel and A Baussard

Thin-skin eddy-current inversion for the determination of crack shapes
J R Bowler

Robust solutions of inverse problems in electromagnetic
non-destructive evaluation
I Altpeter, R Becker, G Dobmann, R Kern, W Theiner and A Yashan

`Single-sided' autofocusing of sound in layered materials
J H Rose

Nondestructive evaluation of materials using pulsed microwave
interrogating signals and acoustic wave induced reflections
R A Albanese, H T Banks and J K Raye

All articles are free for 30 days after publication on the web. This
issue is available at:
    http://stacks.iop.org/0266-5611/18/i=6

Inverse Problems in Engineering   October 2002   Vol. 10, No. 5
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Submitted by Prof. James V. Beck.

Linear Algebra and its Applications   Dec. 15, 2002   Vol. 357, Issue 1-3
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Meromorphic interpolation in several variables   G. Popescu

Linear transformations between matrix spaces that map one rank
specific set into another   C.-K. Li, L. Rodman, P. Semrl

When is HyperlatT=Hyperlatf(T) in finite dimension?   G.T. Prajitura

Global monotone convergence of Newton iteration for a nonlinear
eigen-problem   Y.S. Choi, I. Koltracht, P.J. McKenna, N. Savytska

Small transitive families of subspaces in finite dimensions
M.S. Lambrou, W.E. Longstaff

Factorial Stirling matrix and related combinatorial sequences
G.-S. Cheon, J.-S. Kim

Inversion of polynomial matrices via state-space   J.C. Basilio

Patterns, linesums, and symmetry
E.E. Eischen, C.R. Johnson, K. Lange, D.P. Stanford

An algorithm for a result on minimal polynomials   S.D. Agashe

Numerical range of Aluthge transform of operator   P.Y. Wu

A note on the minimal nonnegative solution of a nonsymmetric algebraic
Riccati equation   C.-H. Guo

Volume and variance in the linear statistical model
I.C. Araujo, M.P. de Oliveira

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Linear Algebra and its Applications Jan. 1, 2003   Vol. 358, Issues 1-3
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Special issue on ACCURATE SOLUTIONS OF EIGENVALUE PROBLEMS
Special editors: Jesse L. Barlow, Bereford N. Parlett, Kresimir Veselic

Bounds for eigenvalues of matrix polynomials
Nicholas J. Higham and Francoise Tisseur

The Orthogonal Rayleigh Quotient Iteration (ORQI) method
Achiya Dax

An algorithm for the bidiagonal SVD
Benedikt Gro[ss]er and Bruno Lang

Perturbation theory for homogeneous polynomial eigenvalue problems
Jean-Pierre Dedieu and Francoise Tisseur

A geometric theory for preconditioned inverse iteration III: A short
and sharp convergence estimate for generalized eigenvalue problems,
Andrew V. Knyazev and Klaus Neymeyr

On the use of harmonic Ritz pairs in approximating internal eigenpairs
Gerard L. G. Sleijpen and Jasper van den Eshof

Inner deflation for symmetric tridiagonal matrices

I. S. Dhillon and A. N. Malyshev

Two-sided and alternating Jacobi-Davidson
Michiel E. Hochstenbach and Gerard L. G. Sleijpen

Some new algorithms for the spectral dichotomy methods
S. K. Godunov and M. Sadkane

Relative perturbation theory for a class of diagonalizable Hermitian
matrix pairs   Ivica Naki

One-sided reduction to bidiagonal form   Rui Ralha

A note on unifying absolute and relative perturbation bounds
Ilse C. F. Ipsen

Rounding error and perturbation bounds for the symplectic QR
factorization   Sanja Singer and Saa Singer

Inclusion regions for matrix eigenvalues
Christopher Beattie and Ilse C. F. Ipsen

An implicit Jacobi-like method for computing generalized hyperbolic
SVD   Adam W. Bojanczyk

Bounds for exponentially stable semigroups   Kreimir Veseli

The Riccati algorithm for eigenvalues and invariant subspaces of
matrices with inexpensive action   Jan Brandts

Relative perturbation theory for hyperbolic singular value problem
Ivan Slapniar and Ninoslav Truhar

Highly accurate symmetric eigenvalue decomposition and hyperbolic SVD
Ivan Slapniar

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On nonsingular sign regular matrices   J.M. Pena

Translations in simply transitive affine actions of Heisenberg type
Lie groups   T. De Cat, K. Dekimpe, P. Igodt

Sign patterns that allow diagonalizability   Y. Shao, Y. Gao

Equitable switching and spectra of graphs   Y. Teranishi

Nonsingularity/singularity criteria for nonstrictly block diagonally
dominant matrices   L.Y. Kolotilina

Linear transformations preserving log-concavity   Y. Wang

On the operator equation e^A=e^B   C. Schmoeger

A matrix approach to polynomials   T. Arponen

Perturbation bounds for coupled matrix Riccati equations
M. Konstantinov, V. Angelova, P. Petkov, D. Gu, V. Tsachouridis

Additive maps on standard operator algebras preserving invertibilities
or zero divisors   J. Hou, J. Cui

Unextendible product bases and the construction of inseparable states
A.O. Pittenger

On the eigenvalues of Jordan products   E.A. Martins, F.C. Silva

A sin2@Q theorem for graded indefinite Hermitian matrices
N. Truhar, R.-C. Li

A class of atomic positive linear maps in matrix algebras   K.-C. Ha

A list of LAA special issues accepting papers for submission may be found
at
http://www.math.wisc.edu/~hans/speciss.html

Submitted by:
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------- end -------

Today's Editor: Patricia K. Lamm
                Michigan State University

Today's Topics:
     2003 CAIMS/SIAM Annual Meeting
     Textbook Preprint: Parameter Fitting and Inverse Problems
     Book Announcement: LS-SVMs and LS-SVMlab software
     Faculty Position in Computational Bioengineering at Utah
     Faculty Positions in Inverse Problems, Imaging, at Central FL
     LAA Special Issue on Accurate Solution of Eigenvalue Problems
     LAA Special Issue on the Numerical Solution of Markov Chains

Submissions for IPNet Digest:
        Mail to ipnet-digest@math.msu.edu

Information about IPNet:
        http://www.mth.msu.edu/ipnet
        Mail to ipnet-request@math.msu.edu

From: Kirsten Wilden <wilden@siam.org>
Subject: CAIMS/SIAM Meeting
Date: Thu, 12 Dec 2002

Conference Name: First Joint Meeting of CAIMS and SIAM
                  24th Annual Meeting of CAIMS/SCMAI
                  2003 SIAM Annual Meeting (AN03)

Location: Queen Elizabeth Hotel, Montreal, QC, Canada

Dates: June 16-20, 2003

The Call for Presentations for this conference is available at:
  http://www.siam.org/meetings/an03/

Deadline for submission of minisymposium proposals: January 3, 2003
Deadline for minisymposium speaker abstracts: January 23, 2003
Deadline for submission of contributed abstracts: January 23, 2003

For additional information, contact SIAM Conference Department at
      meetings@siam.org.

From: Brian Borchers <borchers@nmt.edu>
Subject: Preprint of "Parameter Fitting and Inverse Problems"
Date: Tue, 3 Dec 2002

Rick Aster (NMT Geophysics), Cliff Thurber (Wisconsin Geophysics), and
I (NMT Math) have written the draft of textbook on parameter fitting
and inverse problems aimed at first year graduate students in science
and engineering. Topics include linear regression, least squares
problems and the singular value decomposition, Tikhonov
regularization, robust regression, iterative methods, nonlinear
regression, regularization of nonlinear problems, and Bayesian
methods.

This book has grown out of course that Rick and I have been team

teaching for the last 10 years at New Mexico Tech. Lecture notes from
this course were compiled into a draft that has been used for courses
at NMT and Wisconsin. The book project is under contract with
Academic Press for publication in 2004. At this point we're
particularly interested in finding instructors who would like to use a
draft version of the textbook for courses during 2003.

You can find more information about the book including the preface and
table of contents at

  http://www.ees.nmt.edu/Geop/Classes/GEOP529.html

If you would like access to a preprint of the book for your own
teaching or research use, please contact me (borchers@nmt.edu) for the
userid/password needed to access the book.

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From: Johan Suykens <Johan.Suykens@esat.kuleuven.ac.be>
Subject: LS-SVMs: book announcement and LS-SVMlab software
Date: Mon, 16 Dec 2002

We are glad to announce the publication of a new book

 J.A.K. Suykens, T. Van Gestel, J. De Brabanter, B. De Moor, J.
Vandewalle,
 Least Squares Support Vector Machines,
 World Scientific Pub. Co., Singapore, 2002
 http://www.esat.kuleuven.ac.be/sista/lssvmlab/book.html

This book focuses on Least Squares Support Vector Machines (LS-SVMs)
which are reformulations to standard SVMs. LS-SVMs are closely related
to regularization networks and Gaussian processes but additionally
emphasize and exploit primal-dual interpretations from optimization
theory. The authors explain the natural links between LS-SVM
classifiers and kernel Fisher discriminant analysis. Bayesian
inference of LS-SVM models is discussed, together with methods for
imposing sparseness and employing robust statistics.

The framework is further extended towards unsupervised learning by
considering PCA analysis and its kernel version as a one-class
modelling problem. This leads to new primal-dual support vector
machine formulations for kernel PCA and kernel CCA analysis.
Furthermore, LS-SVM formulations are given for recurrent networks and
control. In general, support vector machines may pose heavy
computational challenges for large data sets. For this purpose, a
method of fixed size LS-SVM is proposed where the estimation is done
in the primal space in relation to a Nyström sampling with active
selection of support vectors. The methods are illustrated with several
examples.

Contents:
. Introduction
. Support vector machines
. Least squares support vector machines, links with Gaussian
  processes, regularization networks, and kernel FDA

. Bayesian inference for LS-SVM models
. Weighted versions and robust statistics
. Large scale problems: Nystrom sampling, reduced set methods,
  basis formation and Fixed size LS-SVM
. LS-SVM for unsupervised learning: support vector machines
  formulations for kernel PCA. Related methods of kernel CCA.
. LS-SVM for recurrent networks and control
. Illustrations and applications

Readership:

Graduate students and researchers in neural networks; machine
learning; data-mining; signal processing; circuit, systems and control
theory; pattern recognition; and statistics.

Info: 308pp., Publication date: Nov. 2002,
ISBN 981-238-151-1

Order information: World Scientific
http://www.wspc.com/books/compsci/5089.html
http://www.esat.kuleuven.ac.be/sista/lssvmlab/book.html

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LS-SVMlab:
Least Squares - Support Vector Machines Matlab/C Toolbox
http://www.esat.kuleuven.ac.be/sista/lssvmlab/

Toolbox:
. Matlab LS-SVMlab1.4 - Linux and Windows Matlab/C code
. Basic and advanced versions
. Functional and object oriented interface

Tutorial User's Guide (100pp.):
. Examples and demos
. Matlab functions with help

Solving and handling:
. Classification, Regression
. Tuning, cross-validation, fast loo,
  receiver operating characteristic (ROC) curves
. Small and unbalanced data sets
. High dimensional input data
. Bayesian framework with three levels of inference
. Probabilistic interpretations, error bars
. hyperparameter selection, automatic relevance determination (ARD)
  input selection, model comparison
. Multi-class encoding/decoding
. Sparseness
. Robustness, robust weighting, robust cross-validation
. Time series prediction
. Fixed size LS-SVM, Nystrom method,
  kernel principal component analayis (kPCA), ridge regression
. Unsupervised learning
. Large scale problems

Related links, publications, presentations and book:
http://www.esat.kuleuven.ac.be/sista/lssvmlab/

Contact: LS-SVMlab@esat.kuleuven.ac.be

From: "Chris R. Johnson" <crj@sci.utah.edu>
Subject: Computational Bioengineering Faculty Position at Utah
Date: Sat, 30 Nov 2002

Tenure-Track Faculty Position
Scientific Computing and Imaging Institute
and Bioengineering Department
at the University of Utah

Applications are invited for an assistant professor level,
tenure-track faculty position at the Scientific Computing and Imaging
(SCI) Institute and the Department of Bioengineering at the University
of Utah. The SCI Institute is an interdisciplinary research institute
consisting of approximately 65 scientists, staff, and students
dedicated to advancing the development and application of computing,
scientific visualization, and numerical mathematics to topics a wide
variety of fields such as bioelectric fields in the heart and brain,
multimodal imaging, and combustion. The SCI Institute currently houses
two National research centers: the NIH Center for Bioelectric Field
Modeling, Simulation, and Visualization and the DOE Advanced
Visualization Technology Center.

The Bioengineering Department has an international reputation for
research and graduate education with particular strengths in biobased
engineering, biomaterials, biomechanics, biomedical computing/imaging,
controlled chemical delivery, tissue engineering and neural
interfaces. Tenure-track faculty typically have primary appointments
within College of Engineering and secondary appointments within the
Health Sciences. The Department is home to approximately 100 graduate
students and 90 upper-level undergraduate students.

The successful candidate will be expected to maintain/establish a
strong extramurally funded research program consistent with the
research mission of the SCI Institute, and participate in
undergraduate/graduate teaching consistent with the educational
mission of the Department of Bioengineering.

The candidate should have a doctoral degree in a field related to
biomedicine or engineering and have demonstrated research skills,
ideally with 2 or more years of postdoctoral experience. A strong
record of experience in the application of computational techniques to
one or more fields of biomedical research is also necessary. Specific
areas of relevant, established strength in the SCI Institute include
cardiac and neurologic electrophysiology, biomedical image and signal
processing, and bioelectric and biomagnetic fields. The candidate must
be prepared to seek and secure ongoing extramural research support,
collaborate closely with researchers in interdisciplinary projects,
and establish or maintain an international presence in his or her
field.

A complete CV, names of three references, and a short description of

current research activities, teaching experience, and career goals should be
sent to:

Director
Scientific Computing and Imaging Institute,
University of Utah
50 So. Central Campus Drive, Rm. 3490
Salt Lake City, UT 84112
Email: crj@sci.utah.edu
Web: www.sci.utah.edu

Review of applications will begin December 1, 2002 and continue until
selection of a candidate is complete.

The University of Utah, an AA/EO employer, encourages applications from
women and minorities, and provides reasonable accommodation to the known
disabilities of applicants and employees.

From: "Linda Philabaum" <philabau@mail.ucf.edu>
Subject: Faculty Positions
Date: Fri, 06 Dec 2002

UNIVERSITY OF CENTRAL FLORIDA
Orlando, Florida

The Mathematics Department of the University of Central Florida
invites applications in the areas of Algebraic Combinatorics and Graph
Theory, Inverse Problems, Tomography and Medical Imaging, Stochastic
Partial Differential Equations, Nonlinear Functional Analysis and its
Applications (e.g., to integral equations, material science, etc.),
Harmonic Analysis and Signal Processing for fall semester of 2003. The
department reserves the right to broaden any definition of the above
areas in order to include strong applications in closely related areas
as the department wishes.

The department seeks to fill up to five tenure-track Assistant
Professor positions. All applicants must possess a Ph.D. in
Mathematics or Applied Mathematics or Mathematical Sciences at the
time their application is submitted. Excellence in research and
teaching is required. Ability to attract external funding and interest
in interdisciplinary research are desirable. Preference will be given
to those applicants with contributions and interests in both theory
and applications and to those who would strengthen and interact with
the focused research groups that currently exist in the department
(see www.math.ucf.edu for the department's website).

The department also seeks applications at the Associate Professor or
Professor level for a position in any one of the areas described
above. For this level, the ability to attract research funding and an
interest in interdisciplinary research are required in addition to the
qualifications listed above.

The department also seeks applicants to fill two postdoctoral
positions in any of the above areas. Applicants for a postdoctoral
position must have their Ph.D. in Mathematics by July 31, 2003, and
must demonstrate excellence in teaching and the ability to do
research.

All applications should be sent to:
Faculty Search Committee
Mathematics Department
University of Central Florida
P.O. Box 161364
Orlando, FL 32816-1364

Applicants should state in their cover letter for which type of position they are applying. Note the different requirements above for each type of position. In addition to their resumes applicants for the Assistant Professor and Postdoctoral positions should have three letters from references sent to the Search Committee. Consideration of applications will begin January 5, 2003 and will continue until the positions are filled or the department closes the search. For clarification a maximum of eight positions are available to be filled.

UCF is an affirmative action employer and all qualified individuals are invited to apply. Applications materials, including transcripts, are public documents available for review upon request.

UNIVERSITY OF CENTRAL FLORIDA
Orlando, Florida

The Mathematics Department of the University of Central Florida seeks to fill two tenure-track Assistant or Associate Professor positions for the fall semester of 2003 in the areas of Nonlinear Waves and Modeling. The successful applicants must possess a Ph.D. in Applied Mathematics, Mathematics, or a related area at the time their application is submitted. Excellence in research and teaching is required, as well as ability to attract external funding. Interest in interdisciplinary research is desirable. Preference will be given to those applicants whose contributions and interests in both theory and applications closely match those that currently exist in the department (see www.math.ucf.edu). All applications should be sent to:

Professor D.J. Kaup
Nonlinear Waves Search Committee
Mathematics Department
University of Central Florida
P.O. Box 161364
Orlando, FL 32816-1364

Applicants must state in their cover letter that they are applying for the Nonlinear Waves position. In addition to their resumes, applicants are requested to provide the names, addresses, phone numbers, and e-mail addresses of three or more references. Consideration of applications will begin December 1, 2002. Other applications will be considered until the positions are filled.

UCF is an affirmative action employer and all qualified individuals are invited to apply. Application materials, including transcripts, are public documents available for review upon request.

Submitted by: Linda Philabaum, Adm. Assistant
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(407) 823-6253 (FAX)
University of Central Florida

4000 Central Florida Blvd.
Orlando, Florida 32816-1364

From: Jesse Barlow <barlow@cse.psu.edu>
Subject: LAA Special Issue on Accurate Solution of Eigenvalue Problems
Date: Sun, 1 Dec 2002

                    Second Announcement

       Special Issue of Linear Algebra and Its Applications

         ACCURATE SOLUTION OF EIGENVALUE PROBLEMS III

In the last several years, there have been a number of advances in the
accurate solution of eigenvalue problems. Many of the results have
come from the realization that eigenvalue algorithms that exploit the
structure of the problem can lead to more accurate eigenvalue and
eigenvector computations.

To recognize these advances and to encourage further advances, we are
proposing to have a third special issue of Linear Algebra and Its
Applications on Accurate Solution of Eigenvalue Problems. This is the
third such special issue. The first was volume 309 of Linear Algebra
and Its Applications, published in early 2000, the second will appear
sometime in 2002.

This special issue is in coordination with the International Workshop
on Accurate Solution of Eigenvalue Problems IV held in Split, Croatia
on June 24-27, 2002. The participants in the workshop will be strongly
encouraged to submit papers to the special issue. Submissions are also
encouraged from non-participants as long as they are consistent with
the themes of the workshop.

The editors for this special issue will be:

  Jesse L. Barlow
  Department of Computer Science
  and Engineering
  The Pennsylvania State University
  University Park, PA 16802-6106
  USA

  Beresford N. Parlett
  Department of Mathematics
  University of California at Berkeley
  Berkeley, CA 94720
  USA

  Kresimir Veselic'
  Lehrgebiet Mathematische Physik
  Fernuniversitaet Hagen
  Postfach 940
  D-58084 Hagen
  Germany

Please submit three (3) copies of your manuscript to the editor of
your choice. Manuscripts submitted to this special issue will be
refereed according to standard procedures for Linear Algebra and Its
Applications. All papers for this special issue should be postmarked

by January 15, 2003.

From: Hans Schneider <hans@math.wisc.edu>
Subject: LAA Special Issue on the Numerical Solution of Markov Chains
Date: Tue, 10 Dec 2002

LAA special issue

Proceedings of the 2003 conference on the
Numerical Solution of Markov Chains

LAA will publish the proceedings of this conference to be held at the
University of Illinois at Urbana-Champaign, September 3 - 5, 2003. The
special issue editors are: Winfried Grassmann, Carl Meyer, Billy Stewart
and Daniel Szyld. Papers should be submitted to billy@csc.ncsu.edu or
anlangvi@unity.ncsu.edu by March 17, 2003. For details see the conference
announcement at

    http://www.csc.ncsu.edu/nsmc2003

or at

    http://www.math.wisc.edu/~hans/laa.html

Submitted by: Hans Schneider
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Math Dept Fax: 608-263-8891
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