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IPNet Digest Volume 32, Number 1 21 January 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

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Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Antonio Leitao acgleitao@gmail.com
Date: Friday, 20 December 2024
Subject: AIP 2025 Conference - 2nd Call for Minisymposium Proposals

The next AIP Conference will be held at FGV EMAp, Rio de Janeiro, Brazil from July 28 to August 1, 2025.

For detailed information see https://eventos.fgv.br/aip2025/

We invite proposals for Mini symposia containing the following information:

- Title (up to 100 characters)
- Names and affiliations of organizers
- Brief description of the topic (about half a page)
- List of speakers including affiliations and links to webpages if available

A minisymposium may have either 4, 8 or 12 speakers, possibly including the organizers. Each talk is allocated 30 minutes, which includes time for discussion. Speakers should be contacted in advance. Please keep in mind that every participant may give at most two talks, preferably only one.

Minisymposium proposals should be submitted via email to aip2025@fgv.br with the subject line: Minisymposium Proposal

There is also an option to submit posters (a limited number of posters will be showcased during a single 90-minute poster section). Poster proposals (including title, abstract, name, affiliation and link to webpage) should be submitted via email to aip2025@fgv.br with the subject line: Poster Proposal

The submission deadline is January 31, 2025.

Contact: aip2025@fgv.br

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From: Hok Shing Wong hsw43@bath.ac.uk

Date: Wednesday, 8 January, 2025
Subject: Inverse Problems and Deep Learning, University of Bath, UK, 7-9 July 2025

Dear all,

We are pleased to announce that we are now inviting submissions for short talks and posters for the Maths4DL conference on Inverse Problems and Deep Learning. The conference is taking place at the University of Bath, UK, from 7-9 July 2025.

Plenary speakers are:

- Youssef Marzouk, MIT AeroAstro
- Sebastian Neumayer, TU Chemnitz
- Ozan Öktem, KTH Royal Institute of Technology
- Audrey Repetti, Heriot Watt University
- Gabriele Steidl, Technische Universität Berlin
- Silvia Villa, Università degli Studi di Genova

You are invited to submit a proposal for a talk or poster that fits within the theme of the conference. Topics of interest are anything on the intersection of inverse problems and deep learning, such as learned regularisation schemes, generative priors, plug-and-play methods, unrolled networks and neural operators for solving PDEs. Additionally, we are interested in uncertainty quantification for such reconstruction methods, for instance via Bayesian methods. Applications include problems from medical and non-medical image and signal processing, physics and engineering.
Please visit our website to find out more about the conference and to access the submission form: https://maths4dl.ac.uk/newsevents/maths4dl-conference-on-inverse-problems-and-deep-learning.
The deadline for contributions is **Friday 28 February 2025**.
Best wishes
Hok Shing
(on behalf of the Maths4DL Conference Team: Alexander Denker, Matthias Ehrhardt, Johannes Hertrich, Hok Shing Wong

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From: Matthias Ehrhardt me549@bath.ac.uk
Date: Monday, 20 January , 2025
Subject: Computational Techniques and Imaging Innovations in the Age of AI, UCL, 1-2 April 2025

We are pleased to announce the workshop on "Computational Techniques and Imaging Innovations in the Age of AI" held at UCL on 1-2 April 2025. The workshop aims to explore the intersection of inverse problems and machine learning, highlighting the critical interplay between classical approaches and modern AI techniques. Topics will include linear and non-linear imaging, Bayesian inversion, mathematics of deep learning, data assimilation, and generative models. This integration is crucial for developing fast, accurate, and reliable solutions to contemporary challenges in theory and applications.

This workshop also celebrates the 65th birthday of Prof. Simon Arridge, a leading figure in the international inverse problems community. His pioneering efforts in linking inverse problems with machine learning make this event a fitting tribute to his contributions and ongoing influence in the field.

Confirmed speakers are:

- David Barber
- Teresa Correia
- Ben Cox
- Cosimo D'Andrea
- Marc Deisenroth

- Lior Horesh
- Bangti Jin
- Bill Lionheart
- Peter Maaß
- Ronny Ramlau
- Carola-Bibiane Schönlieb
- John Schotland
- Tanja Tarvainen
- Kris Thielemans

While the workshop is free to attend, it is mandatory to register in advance to help us plan for the event. We invite early-career researchers to submit an abstract for a poster. Please visit https://ctiai.github.io/ to find out more about the conference and registration.

Best wishes
Matthias
(on behalf of the organisers: Martin Benning, Marta Betcke, Matthias Ehrhardt, Zeljko Kereta)

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Matthias J Ehrhardt, PhD (he/him)
Reader, Department of Mathematical Sciences
University of Bath, UK
https://mehrhardt.github.io

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From: Florian Faucher florian.faucher@inria.fr
Date: Monday, 23 December, 2024
Subject: Post-doctoral and Ph.D. positions in Numerical Inverse Problems

Post-doctoral and Ph.D. positions in Numerical Inverse Problems.

The INCORWAVE project, funded by an ERC Starting Grant, invites applications for Postdoctoral and Ph.D. positions in computational inverse problems. These positions are part of the research team INRIA Makutu, at the University of Pau, located in the southwest of France.

Our project focuses on quantitative inverse methodologies in the context of passive imaging, with applications to helioseismology (solar imaging), and Earth seismology. The research encompasses both mathematical and numerical aspects of inversion. It includes convergence and stability analysis, which are essential for accurate reconstructions. In addition, the project aims to develop advanced quantitative imaging techniques for passive imaging. In particular for anisotropic media, where the multiple physical parameters of the mathematical model must be reconstructed. We are also investigating the integration of advanced regularization methods and data science approaches to enhance the performance of inversion algorithms.

Post-doctoral positions are two-years contracts renewable up to five years; Ph.D. positions are three-year contracts. Starting date is flexible.

More information at https://ffaucher.gitlab.io/erc-incorwave/categories/position/
To apply, please send your CV and cover letter to Florian Faucher at florian.faucher@inria.fr

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From: Luca Calatroni Luca.calatroni@unige.it
Date: Friday, 10 January, 2025
Subject: Post-doc position at MaLGa, Genoa - imaging inverse problems, learning and optimization

Dear colleagues,

Applications are open for one post-doctoral position within the Computational Imaging and Learning (CIL) unit at the Machine Learning Genoa Center (MaLGa), Department of Computer Science.

Self-supervised learning for non-linear image reconstruction problems in fluorescence microscopy: The project focuses on developing innovative reconstruction methods for partially unknown forward models with limited training data, with applications to fluorescence microscopy imaging. The work will be conducted in collaboration with the Italian Institute of Technology (IIT).

The position is funded by the ERC Starting Grant project MALIN.

Position Details:

- Start Date: May/June 2025 (flexible)
- Duration: 2 years (renewable)
- Location: Genova, Italy.

Interested candidates should apply by filling in the following application form before February 10, 2025.

For more details about the position and project, please contact Luca Calatroni (luca.calatroni@unige.it) directly.

All the best,
Luca Calatroni
Luca Calatroni

Associate Professor, University of Genoa, IT
PI at Machine Learning Genoa Center (MaLGa)

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From: Martin Holler martin.holler@uni-graz.at
Date: Friday, 17 January, 2025
Subject: Three-year postdoc position at the University of Graz

The University of Graz offers a

*** 3-year faculty position in the research group "Applied Mathematics and Machine Learning" ***

The research focus of this position is on mathematical foundations and interdisciplinary applications of machine learning and inverse problems.

Benefits of the position include:

- Close integration into a well-established, interdisciplinary collaborative network of several research groups in Graz working in the areas of inverse problems, machine learning, optimization and medical imaging

- High degree of autonomy; individual travel budget, possibility to conduct independent research, to apply for third-party funding, to teach courses, and to co-supervise PhD and Master students

- Part of an active research group (two PostDocs and three PhD students by the end of 2025) working on both mathematical foundations and concrete applications with interdisciplinary cooperation partners, e.g., from biomedical imaging or emergency care medicine

More details can be found at
https://jobs.uni-graz.at/en/jobs/a0451eb9-518e-d9a7-f5b7-6756e9d72c44

For more information, please contact Martin holler
(imsc.uni-graz.at/hollerm)

Application Deadline: February 13, 2025

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Martin Holler
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Leechgasse 34, A-8010 Graz
Phone:+43 316 380 5156
Web: imsc.uni-graz.at/hollerm
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From: Lothar Reichel reichel@math.kent.edu
Date: Monday, 6 January, 2025
Subject: Contents, Electron. Trans. Numer. Anal., vol. 60, 2024

Contents, Electronic Transactions on Numerical Analysis (ETNA), vol. 60, 2024:
Note: ETNA accepts software publications as well as historical papers.

H. Hakula, M. M. S. Nasser, and M. Vuorinen, Mobile disks in hyperbolic space and minimization of conformal capacity, pp. 1-19

J. Haug and R. Treinen, Multi-scale spectral methods for bounded radially symmetric capillary surfaces, pp. 20-39

E. Carson and I. Dauzickaite, The stability of split-preconditioned FGMRES in four precisions, pp. 40-58

C. M. Cuesta, F. de la Hoz, and I. Girona, Numerical computation of the half Laplacian by means of a fast convolution algorithm, pp. 59-98

T. Linss, N. Kopteva, G. Radojev, and M. Ossadnik, A review of maximum-norm a posteriori error bounds for time-semidiscretisations of parabolic equations, pp. 99-122

M. Errachid, A. Essanhaji, and A. Messaoudi, Dimensional reduction for multivariate Lagrange polynomial interpolation problems, pp. 123-135

B. Rester, A. Vasilyeva, and J. V. Lambers, Convergence analysis of a Krylov subspace spectral method for the 1D wave equation in an inhomogeneous medium, pp. 136-168

L. Gouarin and N. Spillane, Fully algebraic domain decomposition preconditioners with adaptive spectral bounds, pp. 169-196

J. M. Tabeart and J. W. Pearson, Saddle point preconditioners for weak-constraint 4D-Var, pp. 197-220

K. Kan, J. G. Nagy, and L. Ruthotto, LSEMINK: a modified Newton-Krylov method for log-sum-exp minimization, pp. 618-635

A. Hadjidimos, X. Li, and R. S. Varga, Application of the Schur-Cohn Theorem to the precise convergence domain for a p-cyclic SOR iteration matrix, pp. A1-A14

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From: Charley Denton cdenton@aimsciences.org
Date: Thursday, 19 December, 2024
Subject: IPNet Digest table of contents submission (IPI 19-1)

IPI February 2025 Vol. 19, No. 1 articles:

1. Interior transmission problems with coefficients of low regularity
Georgi Vodev

2. Superiorized iteration algorithm for CT image simultaneous reconstruction and segmentation
Shousheng Luo, Zhiting Liu, Yaofei Lu and Xue-Cheng Tai

3. Fully-connected tensor network decomposition and group sparsity for multitemporal images cloud removal
Zhihui Tu, Jian Lu, Hong Zhu, Wenyu Hu, Qingtang Jiang and Michael K. Ng

4. Denoising of sphere- and SO(3)-valued data by relaxed tikhonov regularization
Robert Beinert, Jonas Bresch and Gabriele Steidl

5. Direct imaging of inhomogeneities in a 3D shallow ocean waveguide with an elastic seabed
Keji Liu

6. Stability estimates for the inverse source problem with passive measurements
Faouzi Triki, Kristoffer Linder-Steinlein and Mirza Karamehmedović

7. Simultaneously identifying piecewise smooth conductivity and initial value for a heat conduction equation
Shuli Chen, Gen Nakamura and Haibing Wang

8. An inverse problem with partial Neumann data and Ln/2 potentials
Leonard Busch and Leo Tzou

Charley Denton
Communications Specialist
American Institute of Mathematical Sciences
Email: cdenton@aimsciences.org

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From: Charley Denton cdenton@aimsciences.org
Date: Thursday, 19 December, 2024

Subject: IPNet Digest table of contents submission (IPI 19-2)

IPI April 2025 Vol. 19, No. 2 articles:

1. Convexification numerical method for a coefficient inverse problem for the system of nonlinear parabolic equations governing mean field games
Michael V. Klibanov, Jingzhi Li and Zhipeng Yang

2. A variational model to remove multiplicative noise based on SAR image feature preservation
Yamei Zhou, Zhichang Guo, Yao Li, Wenjuan Yao and Boying Wu

3. Quantum inverse scattering for time-decaying harmonic oscillators
Atsuhide Ishida

4. Reciprocal transformation based convex variational image restoration with multiplicative noise
Yu Gan, Zhifang Liu and Huibin Chang

5. Variational image dehazing with a novel underwater dark channel prior
Zhengmeng Jin, Yue Ma, Lihua Min and Minling Zheng

6. Distribution of resonances and inverse resonance problems with the mixed given data for the massless Dirac operator on the real line
Ting-Ting Zuo and Xiao-Chuan Xu

7. Texture Edge detection by Patch consensus (TEP)
Guangyu Cui and Sung Ha Kang

8. Numerical method for inverse scattering by random penetrable periodic structures
Yi Wang, Junliang Lv and Shuxin Li

9. Fractional optimal control for deep convolutional neural networks exploring ODE-based solutions for image denoising
Fakhr-eddine Limami, Aissam Hadri, Amine Laghrib and Lekbir Afraites

Best regards,
Charley Denton
Communications Specialist
American Institute of Mathematical Sciences
Email: cdenton@aimsciences.org
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IPNet Digest Volume 32, Number 2 28 February 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. Postdoc opportunity at UCL in Maths for Deep Learning
2. Inverse Problems Symposium June 1-3, 2025 at Michigan State University
3. Online training Core Imaging Library, March 2025
4. AIP 2025 Conference - Updated Deadline for Minisymposium Proposals

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Simon Arridge <s.arridge@ucl.ac.uk>
Date: Thursday, 13 February 2025
Subject: Post doc opportunity at UCL in Maths for Deep Learning

We have an opportunity for a 18-month postdoc position at UCL on our programme grant "Maths for Deep Learning" https://maths4dl.ac.uk/

For more information and to apply, please visit the UCL jobs site: Job details: Research Fellow in the Mathematics of Deep Learning

Informal enquires can be made to Simon Arridge <s.arridge@ucl.ac.uk>

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From: Kirk Dolan, dolank@msu.edu
Date: Thursday, 23 January, 2025
Subject: Inverse Problems Symposium June 1-3, 2025 at Michigan State University

Inverse Problems Symposium 2025 registration and abstract submission are open!

The IPS 2025 is a continuation of 31 successful US and international symposia since 1991. The purpose of this conference is to bring together researchers and practitioners in inverse problems to exchange ideas, methods, and latest developments.

Early Registration (available until April 13th): $375
Regular Registration (begins April 14th): $425
Student Early Registration (available until April 13th): $150
Student Regular Registration (begins April 14th): $200

Sunday, June 1, is a tutorial on Machine Learning. Monday, June 2, will be oral presentations, Student Poster Competition, and evening banquet. Tuesday will be oral presentations finishing after lunch.
https://www.canr.msu.edu/inverse-problems/

Kirk Dolan, Ph.D.
Professor

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Department of Biosystems & Agricultural Engineering
469 Wilson Road
135 Trout Food Science Building
Michigan State University
East Lansing, MI 48824
Phone: 517-353-3333
dolank@msu.edu

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From: Jakob Sauer Jørgensen, DTU, jakj@dtu.dk
Date: Tuesday, 28 January 2025
Subject: Online training Core Imaging Library, March 2025

We're hosting 3 online training sessions, where you can dive into the Core Imaging Library (CIL) - a python package for tomographic imaging and other inverse problems. Sessions are hands-on using Jupyter notebooks and Python on our cloud platform, no installation needed.

Day 1 - 25 March, 13-17 GMT: Getting started with CIL
Day 2 - 26 March, 13-17 GMT: Iterative reconstruction with CIL
Day 3 - 27 March, 13-17 GMT: Advanced topics in CIL

This training is ideal for students and researchers working with CT data or inverse problems. Whether you're conducting research, building algorithms, or analysing imaging data, this is your chance to enhance your skills.

You're welcome to join one or all of the sessions, but if you're new to CIL or CT, we recommend kicking off with Day 1 to get familiar with the basics. If you have been to one of our CIL trainings before, Day 3 has some new notebooks and content to check out!

There are limited places available, so fill in the registration form as soon as possible!

More details and sign-up (free of charge but mandatory) at https://ccpi.ac.uk/events/cil-online-training-march-2025/

Post event (and in general) support is available on our Discord: https://discord.gg/kmBcU2kebB

Hope to see you there, and feel free to forward the invitation,

Jakob Sauer Jørgensen, DTU (jakj@dtu.dk)
- on behalf of the CIL team

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From: Antonio Leitao acgleitao@gmail.com
Date: Monday, 3 February, 2025
Subject: AIP 2025 Conference - Updated Deadline for Minisymposium Proposals

We are pleased to announce that the submission deadline has been extended to February 14, 2025.
The next AIP Conference will be held at FGV EMAp, Rio de Janeiro, Brazil, from July 28 to August 1, 2025.
For detailed information, please visit: https://eventos.fgv.br/aip2025/

We invite proposals for Minisymposia containing the following information:
- Title (up to 100 characters)
- Names and affiliations of organizers
- Brief description of the topic (about half a page)
- List of speakers, including affiliations and links to webpages if available

A Minisymposium may have either 4, 8, or 12 speakers, possibly including the organizers. Each talk is allocated 30 minutes, which includes time for discussion.
Please ensure that speakers are contacted in advance.
Kindly note that each participant may give at most two talks, preferably only one.
Minisymposium proposals should be submitted via email to aip2025@fgv.br with the subject line: Minisymposium Proposal.

We look forward to receiving your proposals. For any questions or further details, please contact us at aip2025@fgv.br.

Kind regards,
AIP 2025 Organizing Committee

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IPNet Digest Volume 32, Number 3 21 March 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. 8 PhD and 7 Postdoc Positions in a New Special Research Area
2. Associate professor (non-tenure track) at LUT University - DL 3.4.2025
3. Professor / Associate Professor (tenure track) position in Scientific Computing: UEF
4. Helsinki Speech Challenge 2024 AMMC special issue
5. Summer school 2025: University of Jyväskylä
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7. table of contents, AIMS

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Martin Holler martin.holler@uni-graz.at
Date: Friday, 07 March, 2025
Subject: 8 PhD and 7 Postdoc Positions in a New Special Research Area

Dear Colleagues,

In our new special research area (SFB) on "Mathematics of Reconstruction in Dynamical and Active Models", teams at the University of Graz, TU Graz, TU Vienna, and University of Klagenfurt are collaborating on a comprehensive, joint, interdisciplinary research effort to advance the mathematics of reconstruction for dynamical and active model, in particular in view of applications in magnetic resonance imaging (MRI).
Towards this aim, we will develop a comprehensive mathematical and computational framework for quantitative imaging, including physical modeling and optimization of the data acquisition process, identification of parameters, variational modeling, and generative machine learning methods; see https://imsc.uni-graz.at/mr-dynamo

for further details. As part of this research effort, we invite applications for in total 8 PhD and 7 PostDoc positions within our research area, see
https://imsc.uni-graz.at/mr-dynamo/jobs
To receive full consideration, applications should be submitted before March 21, 2025, but the call will remain open until all positions are filled.

Best regards,
Martin Holler on behalf of the SFB
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Martin Holler
IDea_Lab, University of Graz
Leechgasse 34, A-8010 Graz
Phone:+43 316 380 1645
Web: imsc.uni-graz.at/hollerm

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From: Toni Karvonen Toni.Karvonen@lut.fi

Date: Thursday, 13 March 2025
Subject: Associate professor (non-tenure track) at LUT University - DL 3.4.2025

The Department of Computational Engineering at LUT University in Lappeenranta, Finland, is seeking an associate professor (non-tenure track) to develop education in, for example, mathematics within our computational science and artificial intelligence degree programmes.

The main duties will include:

- developing education at the national and international levels and coordinating administrative tasks in the degree programmes;
- teaching basic and intermediate courses; and
- contributing to the department's research activities.

The department hosts the Flagship of Advanced Mathematics for Sensing, Imaging and Modelling (FAME), funded by the Research Council of Finland and a research unit on Applied Mathematics. Current research areas of the department include inverse problems, numerical analysis, computational statistics, computer vision and pattern recognition.
The position is part of LUT University's non-tenure track. The employment relationship is fixed-term for four years with a six-month trial period. At the end of the four-year term, the position may be made permanent after a successful promotion review.
The deadline for applications is **3 April 2025**. More information and instructions for applying: Associate professor (non-tenure track)
For further information, please contact Lassi Roininen (lassi.roininen@lut.fi) or Toni Karvonen (toni.karvonen@lut.fi)

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From: Tanja Tarvainen tanja.tarvainen@uef.fi
Date: Friday, 21 March 2025
Subject: Professor / Associate Professor (tenure track) position in Scientific Computing

The University of Eastern Finland is inviting applications for the post of Professor/Associate Professor (Tenure Track) of Artificial Intelligence in Scientific Computing at the Department of Technical Physics of the Faculty of Science, Forestry and Technology on the Kuopio campus. The position will be filled from 1 September 2025 (or as agreed).

Please find more information and submit your application: Professor/Associate Professor (Tenure Track), Artificial Intelligence in Scientific Computing

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From: Hjørdis Schlüter hjordis.schluter@helsinki.fi
Date: Friday, 14 March 2025
Subject: Helsinki Speech Challenge 2024 AMMC special issue

Dear all,

The journal Applied Mathematics for Modern Challenges (AMMC) is running a special issue on the Helsinki Speech Challenge 2024. The special issue is open for submissions from anyone and welcomes papers detailing reconstruction methods for the datasethttps://blogs.helsinki.fi/helsinki-speech-challenge/data/.

The submission deadline for this is August 15, 2025, and the aim is to publish the special issue in the December volume of AMMC. Submission should be done via the journal's homepage https://www.aimsciences.org/AMMC/ using EditFlow.

For reference, the link below is a previous special issue on the Kuopio Tomography Challenge (KTC2023):https://www.aimsciences.org/AMMC/article/2024/2/2.

Please let us know if you have questions regarding the special issue.

With kindest regards,
Kim Knudsen and Hjørdis Schlüter (guest editors of the special issue)

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From: Janne Nurminen janne.s.nurminen@jyu.fi
Date: Thursday, 20 March, 2025
Subject: Jyväskylä Summer school 2025

Dear colleague,

Greetings from the University of Jyväskylä!

The application period for the Jyväskylä Summer School is now open! ☀️
Read more & apply not later than 30 April here: www.jyu.fi/jss
The 34th Jyväskylä Summer School will take place on **4-15 August 2025 at the University of Jyväskylä**. One of the largest and oldest summer schools in Finland is organised by the Faculty of Mathematics and Science and the Faculty of Information Technology. Jyväskylä Summer School welcomes students from all over the world and offers a chance to take part in courses and get international experience.

This year's Summer School courses fall mostly under the themes of *Quantum Science and Probability Theory* and *Advanced Approaches for Secure and Intelligent Technologies*. Courses are offered in the following subjects:

- Chemistry
- Cognitive Science
- Computational Sciences
- Cyber Security
- **Inverse Problems**
- Mathematics
- Nanoscience
- Physics
- Biological and Environmental Sciences

All courses are taught in English by distinguished researchers from different parts of the world. **Participation in all Summer School courses is free of charge.**

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From: noreply@iopscience.org
Date: Thursday, 13 March 2025
Subject: Inverse Problems, Volume 41, Number 3, March 2025

Papers

A constructible conductivity cloak via homogenisation*
Yves Capdeboscq and Eleanor Gemida

Convergence of Poisson point processes and of optimal transport regularization with application in variational analysis of PET reconstruction
Marco Mauritz and Benedikt Wirth

Imaging sound-soft targets in waveguides using the topological derivative
Umid Karimov, Peter Monk and Virginia Selgas

Microlocal properties of the Radon transform on V-lines: a framework to reduce artifacts due to intrinsic missing data in linear Compton cameras
Mariel Rosenblatt, Marcela Morvidone and Javier Cebeiro

Half-time range description for the free space wave operator and the spherical means transform
P Kuchment and L Kunyansky

Spatially-distributed parameter identification by physics-informed neural networks illustrated on the 2D shallow-water equations
Hugo Boulenc, Robin Bouclier, Pierre-André Garambois and Jérôme Monnier

Solving the acousto-electric tomography by the adaptive Nesterov method of Kaczmarz type
Kai Zhu and Min Zhong

A three-stage method for reconstructing multiple coefficients in coupled photoacoustic and diffuse optical imaging
Yinxi Pan, Kui Ren and Shanyin

Stability analysis of inverse problems for coupled magnetic Schrödinger equations
Mohamed Hamrouni, Moez Khenissi and Éric Soccorsi

Iterative regularization in classification via hinge loss diagonal descent
Vassilis Apidopoulos, Tomaso Poggio, Lorenzo Rosasco and Silvia Villa

On projective stochastic-gradient type methods for solving large scale systems of nonlinear ill-posed equations: applications to machine learning
J C Rabelo, Y Saporito, A Leitão and A L Madureira

Randomized block coordinate descent method for linear ill-posed problems
Qinian Jin and Duo Liu

Direct sampling for recovering a clamped cavity from the biharmonic far-field data
Isaac Harris, Heejin Lee and Peijun Li

PALADIN: a novel plug-and-play 3D CS-MRI reconstruction method
Jia-Mian Wu, Shi-Bai Yin, Tai-Xiang Jiang, Gui-Song Liu and Xi-Le Zhao

Simultaneous estimation of electrical conductivity and permittivity in quantitative thermoacoustic tomography
Teemu Sahlström, Timo Lähivaara and Tanja Tarvainen

Issue 3 - Volume 41 - Inverse Problems - IOPscience

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From: Charley Denton cdenton@aimsciences.org
Date: Friday 14 March 2025
Subject: IPNet Digest table of contents submission (IPI 19-3)

IPI June 2025 Vol. 19, No. 3 articles:

1. Linearization-based direct reconstruction for EIT using triangular Zernike decompositions
Antti Autio, Henrik Garde, Markus Hirvensalo and Nuutti Hyvönen
2. Minimizing quotient regularization model
Chao Wang, Jean-Francois Aujol, Guy Gilboa and Yifei Lou
3. Uniqueness and numerical resolution via iterated sensitivity equation of an inverse electromagnetic coefficient problem with partial boundary data
Jérémy Heleine
4. A fundamental sequences method for an inverse boundary value problem for the heat equation in double-connected domains
Ihor Borachok and Roman Chapko
5. Dynamic MRI reconstruction via weighted nuclear norm and total variation regularization
Bao-Li Shi, Li-Wen Fu, Meng Yuan, Hao-Hui Zhu and Zhi-Feng Pang
6. Subspace-based coupled tensor decomposition for hyperspectral blind fusion
Kunjing Yang, Minru Bai, Renwei Dian and Ting Lu
7. Sampling strategies in Bayesian inversion: A study of RTO and Langevin methods
Rémi Laumont, Yiqiu Dong and Martin Skovgaard Andersen
8. Diffusion posterior sampling for magnetic resonance imaging
Ji Li and Chao Wang

Inverse Problems and Imaging

Best regards,
Charley Denton
Communications Specialist
American Institute of Mathematical Sciences
Email: cdenton@aimsciences.org

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IPNet Digest Volume 32, Number 4 28 April 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. Inverse Problems Symposium 2025 registration and abstract submission are open!
2. News item for IPNet Digest from IOPP Inverse Problems journal
3. a new book: Carleman Estimates in Mean Field Games
4. table of contents

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Dolan, Kirk dolank@msu.edu
Date: Monday 24 March, 2025
Subject: Inverse Problems Symposium 2025 registration and abstract submission

Inverse Problems Symposium 2025 registration and abstract submission are open!

The IPS 2025 is a continuation of 31 successful US and international symposia since1991. The purpose of this conference is to bring together researchers and practitioners in inverse problems to exchange ideas, methods, and latest developments.

Abstracts are due May 11, 2025.

Early Registration (available until May 4th): $375
Regular Registration (begins April 14th): $425
Student Early Registration (available until April 13th): $150
Student Regular Registration (begins April 14th): $200

Sunday, June 1, is a tutorial on Machine Learning. The keynote talk on Monday, June 2 will be on Autonomous Vehicles, followed by oral presentations, Student Poster Competition, and evening banquet. Tuesday will be oral presentations finishing after lunch.
https://www.canr.msu.edu/inverse-problems/

Kirk Dolan, Ph.D.
Professor
Department of Food Science & Human Nutrition
Department of Biosystems & Agricultural Engineering
469 Wilson Road
135 Trout Food Science Building
Michigan State University
East Lansing, MI 48824
Phone: 517-353-3333
dolank@msu.edu

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From: Iain Trotter iain.trotter@ioppublishing.org
Date: Tuesday, 25 March ,2025
Subject: News item for IPNet Digest from IOPP Inverse Problems journal

Editor-in-Chief Vacancy for *Inverse Problems*
Inverse Problems, published by IOP Publishing, is currently seeking an enthusiastic and experienced Editor-in-Chief.
The Editor-in-Chief is the journal's scientific advisor, providing community insight and acting as a strong advocate for the journal in the community, with a view to increasing the status and visibility of the journal. The Editor-in-Chief works with the Institute of Physics Publishing journal team to set the vision for the journal and develop the journal to achieve agreed aims. They will provide leadership of the Editorial Board, collaborating to provide ideas for editorial initiatives and commissioning suggestions. The deadline for applications is 27th April 2025. For more details and to apply please visit Inverse Problems - IOPscience. For any queries, please email ip@ioppublishing.org
IOP Publishing
No.2 The Distillery
Glassfields
Avon Street
Bristol
BS2 OGR
ioppublishing.org
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From: Mikhail Klibanov mklibanv@charlotte.edu
Date: Sunday, 23 March ,2025
Subject: a new book: Carleman Estimates in Mean Field Games

Dear Colleagues,

This is to draw your attention to a recently published book:

Title: Carleman Estimates in Mean Field Games

Subtitle: Stability and Uniqueness for Nonlinear PDEs and Inverse Problems

Authors: Michael V. Klibanov and Jingzhi Li

Publisher: De Gruyter, 2025

https://www.degruyter.com/document/isbn/9783111723198/html

A truly attractive feature of the Mean Field Games Theory is that this theory can govern a wide variety of societal phenomena via a system of two coupled nonlinear parabolic Partial Differential Equations with opposite directions of time. Although a proper mathematical modeling is required for each such phenomenon. The price to pay, however, is a complicated structure of this system. Nevertheless, Carleman estimates can handle at least some difficult questions for this system, although far not all, of course.

Best regards, Michael V. Klibanov and Jingzhi Li

Mikhail V. Klibanov
Ph.D. and Doctor of Science in Mathematics

Professor
Department of Mathematics and Statistics
University of North Carolina a Charlotte
Charlotte, NC 28223, USA
mklibanv@charlotte.edu
https://clas-math.charlotte.edu/mlkhail-klibanov/
Links to my two books:

https://www.degruyter.com/document/doi/10.1515/9783110745481/html
https://www.degruyter.com/document/isbn/9783111723198/html

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From: noreply@iopscience.org
Date: Friday, 18 April 2025
Subject: Inverse Problems, Volume 41, Number 4, April 2025

Papers

ASPIRE: iterative amortized posterior inference for Bayesian inverse problems
Rafael Orozco, Ali Siahkoohi, Mathias Louboutin and Felix J Herrmann

An accelerated preconditioned proximal gradient algorithm with a generalized Nesterov momentum for PET image reconstruction
Yizun Lin, Yongxin He, C Ross Schmidtlein and Deren Han

An inverse Cauchy problem of a stochastic hyperbolic equation
Fangfang Dou and Peimin Lü

Discrete inverse problems with internal functionals
Marcus Corbett, Fernando Guevara Vasquez, Alexander Royzman and Guang Yang

Convergence analysis of regularised Nyström method for functional linear regression
Naveen Gupta and S Sivananthan

Distributed learning with discretely observed functional data
Jiading Liu and Lei Shi

Lipschitz stability of an inverse problem of transmission waves with variable jumps
L Baudouin, A Imba, A Mercado and A Osses

Convergence analysis of the discretization of continuous-domain inverse problems
Vincent Guillemet, Julien Fageot and Michael Unser

On inverse problems for mean field games with common noise via Carleman estimate
Zhonghua Liao and Qi Lü

Unique reconstruction for discretized inverse problems: a random sketching approach via subsampling
Ruhui Jin, Qin Li, Anjali Nair and Samuel N Stechmann

Convergence rates of Landweber-type methods for inverse problems in Banach spaces
Qinian Jin

A mixed finite element scheme for three-dimensional Maxwell's transmission eigenvalue problems
Qing Liu, Tiexiang Li, Wen-Wei Lin and Shuo Zhang

Subgradient-based Lavrentiev regularisation of monotone ill-posed problems
Markus Grasmair and Fredrik Hildrum

Crack identification in a multi-layer inhomogeneous domain using the Reciprocity Gap-Linear Sampling Method
Yosra Boukari and Nouha Jenhani

Issue 4 - Volume 41 - Inverse Problems - IOPscience
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IPNet Digest Volume 32, Number 5 12 June 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. GIP Annual Meeting 2025
2. Italian Inverse problems & Imaging meeting - I^3, Genoa, January 19-21, 2026
3. Postdoc position, CT reconstruction algorithms, DTU, Denmark
4. 2 Fully Funded PhD Positions in Inverse Problems – University of Limerick
5. table of contents
6. table of contents, AIMS

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Thomas Schuster thomas.schuster@num.uni-sb.de
Date: Monday 5 May, 2025
Subject: Announcement GIP Annual Meeting 2025

Upcoming event: GIP Annual Meeting
Date: 8 - 10 October 2025
Venue: Innovation Center, Saarland University Saarbruecken, Germany
Registration is now open for the GIP Annual Meeting at Saarland University Saarbruecken, Germany.
The workshops collects experts in inverse problems and related fields and has to be seen in a series of workshops starting in 2002 in Chemnitz (formerly known as Chemnitz Symposium on Inverse Problems).
Invited and confirmed speakers are:

- Leon Bungert (University of Wuerzburg)
- Lauri Oksanen (University of Helsinki)
- Björn Sprungk (TU Bergakademie Freiberg)
- Anne Wald (University of Goettingen)

Please register under www.uni-saarland.de/gip
Thomas Schuster (local organizer, Saarland University Saarbruecken)

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Univ.-Prof. Dr. Thomas Schuster

Full Professor for Numerical Mathematics

Member of Academic Senate
Member of Steering Committee of Hermann and Dr. Charlotte Deutsch Foundation
President of the Society for Inverse Problems (GIP e.V.)

Department of Mathematics
Saarland University
66123 Saarbruecken
Germany

Phone: +49 (0)681 302 57425
Secretary: +49 (0)681 302 3018
Fax: +49 (0)681 302 4435
Web: https://www.uni-saarland.de/lehrstuhl/schuster/

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From: Matteo Santacesaria Matteo.Santacesaria@unige.it
Date: Wednesday, 4 June ,2025
Subject: Italian Inverse problems & Imaging meeting - I³, Genoa, January 19-21, 2026

Dear colleagues,

It is a pleasure to announce I³, the Italian Inverse problems & Imaging meeting. The first edition will be held at the University of Genoa on January 19-21, 2026.

I³ is the scientific meeting of the Italian community working on topics related to inverse problems and imaging. The meeting is based on voluntary contributions, in the form of talks or posters, by some of the participants, both senior and young researchers.

We encourage researchers at all levels working on inverse problems, imaging, and related topics to submit their interest in presenting their work during registration.

For further details, visit https://sites.google.com/view/i3-meeting.

Best wishes

The organising committee

Giovanni S. Alberti
Federico Benvenuto
Luca Calatroni
Claudio Estatico
Sabrina Guastavino
Matteo Santacesaria

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From: Jakob Sauer Jørgensen jakj@dtu.dk
Date: Tuesday, 6 May ,2025
Subject: Postdoc position, CT reconstruction algorithms, DTU, Denmark

A postdoc position on "Advanced Reconstruction Algorithms for Time-Resolved Nano CT of Sustainable Cement" is available at the Department of Applied Mathematics and Computer Science at the Technical University of Denmark (DTU).

https://tinyurl.com/mathcrete
Deadline: 15 June 2025

Would you like to put your mathematical and algorithm skills to work in a truly interdisciplinary project and be part of devising new sustainable cement formulations through improved dynamic X-ray imaging, then come to DTU and work with us!

We are seeking a full-time postdoctoral researcher to join DTU Compute as part of the Villum Synergy funded project “MathCrete”. This research position will explore novel image reconstruction algorithms for improving the contrast and space+time resolution of dynamic in situ micro and nano CT (computed tomography).

The position offers the unique opportunity to collaborate closely with mathematical imaging researchers at DTU Compute, the DTU 3D Imaging Center and cement experts at DTU Construct, in particular

another MathCrete postdoc focused on developing new cement formulations and characterization techniques.

For algorithms and software there will also be the opportunity to work with the team behind the Core Imaging Library (CIL) and contribute to open-source reproducible research.

Feel free to reach out with questions and forward in your network.

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From: Romina.Gaburro Romina.Gaburro@ul.ie
Date: Wednesday, 6 May ,2025
Subject: 2 Fully Funded PhD Positions in Inverse Problems – University of Limerick

Dear Colleagues,
Applications are invited for **2 fully funded PhD positions** in the Department of Mathematics and Statistics at the **University of Limerick**, Ireland. These PhD scholarships are funded for **four years** with an annual stipend of **€25,000**, and **EU tuition fees covered** (for non-EU applicants, the EU portion of the fees will be covered). Additional funding is available for conference attendance, research travel, computing facilities, and related expenses. The successful candidates will work on the mathematical analysis and development of new reconstruction methods in anisotropic inverse problems. We are seeking motivated applicants with a strong background in analysis and a keen interest in computational inverse problems.
Both PhD students will be part of the Inverse Problems Group at the University of Limerick, the Mathematics Applications Consortium for Science and Industry (MACSI), a vibrant department hosting over 40 PhD students and 15 postdoctoral researchers, and the Centre for Research Training in Foundations of Data Science.
Application Process: to apply, please email the following documents to romina.gaburro@ul.ie:
a **motivation letter; two reference letters;** copy of your undergraduate **transcripts** by the **15 July 2025.** The successful applicants will ideally start in October 2025.
For informal enquiries, please feel free to contact romina.gaburro@ul.ie.
We would be grateful if you could share this opportunity with potential candidates or relevant mailing lists.

Romina Gaburro
Associate Professor in Applied Mathematics
Department of Mathematics and Statistics,
University of Limerick, Ireland
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From: noreply@iopscience.org
Date: Wednesday, 28 May 2025
Subject: Inverse Problems, Volume 41, Number 5, May 2025

Topical Review
A guide to stochastic optimisation for large-scale inverse problems
Matthias J Ehrhardt, Željko Kereta, Jingwei Liang and Junqi Tang

Papers
Relaxation-based schemes for on-the-fly parameter estimation in dissipative dynamical systems
Vincent R Martinez, Jacob Murri and Jared P Whitehead

The inverse obstacle problem for nonlinear inclusions

Vincenzo Mottola, Antonio Corbo Esposito, Luisa Faella, Gianpaolo Piscitelli, Ravi Prakash and Antonello Tamburrin

Stochastic gradient descent method with convex penalty for ill-posed problems in Banach spaces
Ruixue Gu, Zhenwu Fu, Bo Han and Hongsun Fu

Determining anomalies in a semilinear elliptic equation by a minimal number of measurements
Huaian Diao, Xiaoxu Fei, Hongyu Liu and Li Wang

Online optimisation for dynamic electrical impedance tomography
Neil Dizon, Jyrki Jauhiainen and Tuomo Valkonen

GPU accelerated 3D source free adaptive wavefield reconstruction inversion for seismic imaging
Zhilong Fang and Jingjing Zong

Reconstruction of Voronoi diagrams: the case of inverse conductivity problems
Ernesto G Birgin, Antoine Laurain and Danilo R Souza

Reconstruction of space-dependence and nonlinearity of a reaction term in a subdiffusion equation
Barbara Kaltenbacher and William Rundell

On the mathematical foundation of full waveform inversion in viscoelastic vertically transverse isotropic media
Andreas Rieder

Subspace diffusion posterior sampling for travel-time tomography
Xiang Cao and Xiaoqun Zhang

Affine phase retrieval via second-order methods
Bing Gao

Potential coefficient identification problem in parabolic equation with deep neural networks
Kai Cao and Fang Yan

A stability result for a discontinuity jump inverse problem on linear elasticity equation
Jorge Aguayo

Stochastic variance reduced gradient method for linear ill-posed inverse problems
Qinian Jin and Liuhong Chen

Efficient identification of geometric inverse sources of parabolic problems by model order reduction
Xindi Hu, Yangwen Zhang and Shengfeng Zhu

On inverse problems for two-dimensional steady supersonic Euler flows past curved wedges
Gui-Qiang G Chen, Yun Pu and Yongqian Zhang

One-dimensional coefficient inverse problems by transformation operators
Oleg Imanuvilov and Masahiro Yamamoto

Higher order error estimates for regularization of inverse problems under non-additive noise
Diana-Elena Mirciu and Elena Resmerita

Sparse-view CT reconstruction based on total variation with alternating gradient constraint edge-preserving algorithm
Yihong Li, Yingfang Zhang, Yu Li, Xiaojie Zhao and Ping Chen

Issue 5 - Volume 41 - Inverse Problems - IOPscience

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From: Charley Denton cdenton@aimsciences.org
Date: Friday, 16 May, 2025
Subject: IPNet Digest table of contents submission (IPI 19-3)

IPI August 2025 Vol. 19, No. 4 articles:

1. A distributed Douglas-Rachford splitting method for solving linear constrained multi-block weakly convex problems
Leyu Hu, Jiaxin Xie, Xingju Cai and Deren Han
2. Quantum computing algorithms for inverse problems on graphs and an NP-complete inverse problem
Joonas Ilmavirta, Matti Lassas, Jinpeng Lu, Lauri Oksanen and Lauri Ylinen
3. Recovery of an inclusion in photoacoustic imaging
Yavar Kian and Faouzi Triki
4. On some analytic properties of the atmospheric tomography operator: Non-Uniqueness and reconstructability issues
Ronny Ramlau and Bernadett Stadler
5. A novel adaptive non-convex TVp,q model in image restoration
Bao Chen, Yuchao Tang and Xiaohua Ding
6. Student's t prior regularization and its application for image restoration
Cong Tang, Liming Tang and Zhuang Fang
7. Uniqueness principle for fractional (non)-coercive anisotropic polyharmonic operators and applications to inverse problems
Ching-Lung Lin, Hongyu Liu and Catharine W. K. Lo
8. Gauge freedoms in the anisotropic elastic Dirichlet-to-Neumann map
Joonas Ilmavirta and Hjørdis Schlüter

IPI October 2025 Vol. 19, No. 5 articles:

1. Nonradiating sources of the biharmonic wave equation
Peijun Li and Jue Wang
2. Personalized artifacts modeling and federated learning for multi-institutional low-dose CT reconstruction
Jingbo Xu, Ya-Nan Zhu, Xiaoqun Zhang and Qiaoqiao Ding
3. A variational image segmentation model with intensity correction in the presence of high level multiplicative noise
Yamei Zhou, Zhichang Guo, Yao Li and Boying Wu
4. Optimized filter functions for filtered back projection reconstructions
Matthias Beckmann and Judith Nickel
5. Examples of non-scattering inhomogeneities
Lucas Chesnel, Houssem Haddar, Hongjie Li and Jingni Xiao
6. Vertex weight reconstruction in the Gel'fand's inverse problem on connected weighted graphs
Songshuo Li, Yixian Gao, Ru Geng and Yang Yang
7. Photon-limited blind image deconvolution with heavy-tailed priors on kernel and noise

Linghai Kong and Suhua Wei

8. Bayesian inversion for electrical impedance tomography by sparse interpolation
   Quang Huy Pham and Viet Ha Hoang

Inverse Problems and Imaging

Best regards,
Charley Denton
Communications Specialist
American Institute of Mathematical Sciences
Email: cdenton@aimsciences.org

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IPNet Digest Volume 32, Number 6 1 August 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. MSCA Postdoctoral Fellowship: University of Leeds
2. 4th Alps-Adriatic Inverse Problems Workshop (AAIP) October 2 - 3, 2025
3. table of contents

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Daniel Lesnic D.Lesnic@leeds.ac.uk
Date: Thursday 12 June, 2025
Subject: Seeking candidate for MSCA Postdoctoral Fellowship

Seeking candidate for MSCA Postdoctoral Fellowship

A highly qualified candidate with strong expertise in applied numerical mathematics inverse problems to apply for a two-year long Marie Curie fellowship (attractive salary over €100K per year plus family allowance and conference travel funding) is sought.

Requirements, as of the call deadline (10 September 2025):

- Hold a PhD in applied mathematics, with focus on inverse problems, with maximum 8 years of full-time equivalent research experience since obtaining the PhD
- Strong record of publication commensurable with the current career stage
- Open to any nationality but fluent in English
- Must not have resided or worked in United Kingdom for more than 12 months in the last 3 years

Application process (please email as soon as possible but no later than 20 August 2025 the supervisor at D.Lesnic@leeds.ac.uk):

- A cover letter explaining the motivation for applying and commitment of your availability to be in Leeds for 2 years (to commence between September 2026 to September 2027 for a period of 24 months) should the Marie Curie application be successful (deadline for application is 10 September 2025 with answer given around February 2026; also noting that most of the inverse problems application has already been written by the supervisor). It is very important that in case you wish to keep your present job/position at your institution you seek (formal or informal) approval from your manager that allows you unpaid study leave to Leeds in person for a period of 24 months. However, if you do not wish to keep your position or your current position is not permanent and ends in the next two years or do not hold a position, this approval is not necessary but your commitment should be clearly stated in your cover letter.
- Short CV (up to 2 pages), a list of your publications and contact details of two referees.

Submitted by:
Professor Daniel Lesnic
Department of Applied Mathematics, University of Leeds, Leeds LS2 9JT, UK
https://eps.leeds.ac.uk/maths/staff/4052/professor-daniel-lesnic

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From: Barbara Kaltenbacher Barbara.Kaltenbacher@aau.at

Date: Thursday, 3 July ,2025
Subject: 4th Alps-Adriatic Inverse Problems Workshop (AAIP) October 2 - 3, 2025
Dear Colleagues,
It is our great pleasure to announce the 4th Alps-Adriatic Inverse Problems Workshop (AAIP) October 2 - 3, 2025 https://aaip2025.aau.at at University of Klagenfurt, Austria.
Reduced rates are available for persons participating in both events as well as for IPIA members and for students.
We hope to see you in Klagenfurt in September/October 2025!
Elena Resmerita and Barbara Kaltenbacher
……
From: noreply@iopscience.org
Date: Friday, 1 July 2025
Subject: Inverse Problems, Volume 41, Number 7, July 2025

Papers

Determination of discontinuous diffusion coefficients for the heat equation on a tree-shaped network
Emmanuelle Crépeau, Lionel Rosier and Julie Valein

On SCD Semismooth Newton methods for the efficient minimization of Tikhonov functionals with non-smooth and non-convex penalties
Helmut Gfrerer, Simon Hubmer and Ronny Ramlau

Heavy-ball enhanced pseudo-inverse-based hard thresholding algorithms for sparse linear inverse problems
Jinming Wen, Junhua He, Zihao He and Xiaoli Liu

On the recovery of two function-valued coefficients in the Helmholtz equation for inverse scattering problems via inverse Born series
Fioralba Cakoni, Shixu Meng and Zehui Zhou

Global uniqueness for determining an inverse electromagnetic scattering medium and its physical coefficients
Fenglong Qu, Yubo Wang and Yanli Cui

Tracking disturbances in transmission networks
J-G Caputo and A Hamdi

Stable recovery of a time dependent matrix potential for wave equation from arbitrary measurements
Oumaima Ben Fraj and Imen Rassas

On a quantitative partial imaging problem in vector tomography
Hiroshi Fujiwara, Kamran Sadiq and Alexandru Tamasan

Phase retrieval via media diversity
Yan Cheng, Kui Ren and Nathan Soedjak

An approximate analytical reconstruction method in inverse problems of cone-beam rotary computed laminography
Chengxiang Wang, Zhouyu Bi, Baodong Liu, Jiemin Que, Lingli Zhang and Wei Yu

An inverse potential problem for the stochastic heat equation with space-time noise
Peijun Li, Xiangchan Zhu and Yichun Zhu

Inverse problem for stochastic heat equations with singular inverse-square potentials
Luchuan Zhou, Bo You and Xiaoli Feng

Recovery of piecewise smooth parameters in an acoustic-gravitational system of equations from exterior Cauchy data
Sombuddha Bhattacharyya, Maarten V de Hoop and Vitaly Katsnelson

Revisiting general source condition in learning over a Hilbert space
Naveen Gupta and S Sivananthan

Accelerating ill-conditioned Hankel matrix recovery via structured Newton-like descent
HanQin Cai, Longxiu Huang, Xiliang Lu and Juntao You

Efficient decomposition-based algorithms for -regularized inverse problems with column-orthogonal and Kronecker product matrices
Brian F Sweeney, Malena I Español and Rosemary A Renaut

Inverse gravimetry by multipole expansions
Tianshi Lu and Santosh Linkha

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IPNet Digest Volume 32, Number 7 8 October 202

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. Postdoctoral Researcher (m/f/d), Graz, Austria
2. Assistant/Associate Professor (Tenure Track) position in the University of Eastern Finland
3. Nomination for EAIP Young Scientist Award
4. table of contents (August Issue)
5. table of contents (September issue)

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Melanie Moser melanie.moser@uni-graz.at
Date: Friday 5 September 2025
Subject: Postdoctoral Researcher (m/f/d), Graz, Austria

The Department of Mathematics and Scientific Computing is looking for a *Postdoctoral Researcher (m/f/d)* https://jobs.uni-graz.at/en/jobs/ba39b762-691f-ab51-1115-68b6aae86c4f

• Application deadline: 17.10.2025
• Salary Category: B1 with PhD
• Salary per Year: € 69060,59
• Employment Start: As soon as possible
• Hours per week: 40.00 h/w
• Duration of Contract: Temporary employment
• Temporary Employment: 6 years

Your Responsibilities
• Independent research and publication activities in the field of applied mathematics
• Participation in existing research projects and development of new research projects in the fields mathematical image processing, inverse problems and data science with emphasis on analysis, optimization, numerics and algorithmic solution
• Collaboration in interdisciplinary cooperation projects and third-party funded projects
• Possibility to work on a habilitation project
• Participation in the application process for third-party funded projects
• Independent teaching of courses and conducting of examinations in the field of applied mathematics
• Professional and organizational supervision of students of the department
• Participation in organizational and administrative tasks as well as in evaluation measures

Your Profile
• Completed doctorate/PhD in a mathematical branch of study
• Solid knowledge of one of the following fields: mathematical methods, analysis and numerics in imaging, inverse problems or data sciences
• Ability to integrate into the department's research profile and to contribute to interdisciplinary cooperation projects
• Independent working style in research, teaching and administration
• Excellent knowledge of written and spoken English

• Ability to teach in German (after a transition period of 2 years)
• Capacity for teamwork, organizational talent and ability to communicate

We offer an annual gross salary of at least € 69,060,59 for a full-time position. An overpayment based on qualification and experience is possible.

About us
At the University of Graz, 4700 employees work together on future questions and solutions for the world of tomorrow. Our students and researchers face the great challenges of society and carry the knowledge out. We work for tomorrow. Become part of it!

Contact
For further information please contact Prof. Kristian Bredies (✉ kristian.bredies@uni-graz.at, ☏ +433163805170).
Inverse problems and mathematical image processing is one of the research areas at the Department of Mathematics and Scientific Computing, which is represented in Graz by a dedicated team of international scientists. The associated research group covers a broad spectrum of current applications with a special focus on interdisciplinarity. It offers a friendly working environment, space for creativity and independent work, an appreciative attitude and family friendliness.

The University of Graz strives to increase the proportion of women in particular in management and faculty positions and therefore encourages qualified women to apply. In the event of underrepresentation, women with equal qualifications are generally given priority for admission. Especially with regard to academic staff, we welcome applications from persons with disabilities who meet the requirements of the advertised position.

Please note that in order to comply with the applicable data protection regulations, we can only accept applications via our web-based applicant tool for this vacant position:
https://jobs.uni-graz.at/en/jobs/ba39b762-691f-ab51-1115-68b6aae86c4f

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From: Tanja Tarvainen, tanja.tarvainen@uef.fi
Date: Tuesday, 7 October, 2025
Subject: Assistant/Associate Professor (Tenure Track) position in the University of Eastern Finland

University of Eastern Finland is inviting applications for the post of Assistant/Associate Professor (Tenure Track) of Scientific Computing in Computational Engineering at the Department of Technical Physics of the Faculty of Science, Forestry and Technology on the Kuopio campus. The position will be filled as from 1 April 2026 (or as agreed).

The field of research in the position includes, for example, scientific computing, large-scale simulation, signal and image processing, time-series analysis, optimization and control, computational inverse problems, and artificial intelligence methodologies.

For more information and to submit the application (deadline November 17, 2025), see: https://uef.varbi.com/en/what:job/jobID:858251/

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From: Otmar Scherzer, otmar.scherzer@univie.ac.at
Date: Monday, 6 October, 2025
Subject: Nomination for EAIP Young Scientist Award

The Young Scientist Award was established during the 4th International Conference “Inverse Problems: Modeling and Simulation” in May 2008 and has been since awarded to young scientists who have done outstanding research in inverse problems and applications.

After the establishment of the Eurasian Association on Inverse Problems (EAIP) in 2015, the award was renamed the EAIP Young Scientist Award.

The EAIP Young Scientist Award (s) is presented to two young scientists under the age of 40 at the time of the IPMS conference, with particular merits in inverse problem analysis and its application. The candidates themselves or the institutions where the candidates are employed may submit nominations for the award. Nomination materials, cover letter and CV including a complete list of publications, should be submitted by email to the Secretariat of the Conference Inverse Problems: Modeling and Simulation (ipmsconference@gmail.com) with a CC to Otmar Scherzer (otmar.scherzer@univie.ac.at). The application for candidacy begins six months before the date of each IPMS conference and lasts for four months. The evaluation of candidates by the EAIP Young Scientist Award Committee ends two months before the date of the conference.

The EAIP Young Scientist Award consists of an award plaque, a cash prize of EUR 500, and a fee waiver for the next IPMS conference.

The Award is given during the Opening Ceremony of each International Conference "Inverse Problems: Modeling and Simulation".

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From: noreply@iopscience.org
Date: Wednesday, 3 September, 2025
Subject: Inverse Problems, Volume 41, Number 8, August 2025

Papers

A Bayesian approach for the retrieval of atmospheric particle properties from lidar data with uncertainty quantification Giacomo Varini, Alessia Sannino, Antonella Boselli, Riccardo Damiano and Alberto Sorrentino

Learned RESESOP for solving inverse problems with inexact forward operator Mathias S Feinler and Bernadette N Hahn

Noise-robust one-bit diffraction tomography and optimal dose fractionation Pengwen Chen and Albert Fannjiang

Conditional stability and the numerical solution of the backward problem in dynamical cardiac electrophysiology modeling Qiang Zhang, Masahiro Yamamoto and Jijun Liu

Multi-scale frequency-enhanced deep D-bar method for electrical impedance tomography Xiang Cao, Qiaoqiao Ding and Xiaoqun Zhang

A data-driven approach for fast atmospheric radiative transfer inversion Cristina Sgattoni, Luca Sgheri and Matthias Chung

Dictionary learning based regularization in quantitative MRI: a nested alternating optimization framework Guozhi Dong, Michael Hintermüller and Clemens Sirotenko

Mitigation of artifacts in multistatic and passive radar imaging using microlocal analysis David McMahon and Clifford Nolan

Bayesian compressive sensing using generative models Ying Zhang, Xiaoqun Zhang and Jiulong Liu

Uniqueness for the inverse spectral modified transmission eigenvalue problem for a piecewise continuous refractive indexDrossos Gintides and Kyriakos Stratouras

Full-waveform reconstruction of microseismic events via observations of acoustic pressure in the surrounding fluidWelerson F Kneipp, Antonio A Novotny and Bojan B Guzina
Low-regret shape optimization in the presence of missing Dirichlet dataKarl Kunisch and John Sebastian H Simon
Non-radiating elastic sources in inhomogeneous elastic media at corners with applications
Huaian Diao, Yueran Geng and Ruixiang Tang
Issue 8 - Volume 41 - Inverse Problems - IOPscience

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From: noreply@iopscience.org
Date: Monday, 6 October, 2025
Subject: Inverse Problems, Volume 41, Number 9, September 2025

Papers

Greenhouse gas emission mapping and quantification based on 3D transport modeling and Bayesian state estimationE Vänskä, D Weidmann and A Ursin

Hearing the shape of a cuboid room using sparse measure recoveryAntoine Deleforge, Cédric Foy, Yannick Privat and Tom Sprunck

Direct imaging methods for inverse scattering problem of biharmonic wave with phased and phaseless dataTielei Zhu and Zhihao Ge
Weighted divergent beam transform: reconstruction, unique continuation and stabilityShubham R Jathar, Manas Kar, Venkateswaran P Krishnan and Rahul Raju Pattar
Mixed geometry information regularization for image deblurring with multiplicative noiseShengkun Yang, Zhichang Guo, Jia Li, Fanghui Song and Wenjuan Yao
A solution method for compact linear operator equations based on the Arnoldi processMykhailo Kuian, Ronny Ramlau and Lothar Reichel
An analytical inversion formula for the overdetermined spherical section transforFatma Terzioglu
The elastic ray transforJoonas Ilmavirta, Antti Kykkänen and Teemu Saksala
Exact parameter identification in PET pharmacokinetic modeling: extension to the reversible two tissue compartment modelMartin Holler, Erion Morina and Georg Schramm
Acoustic nonlinearity parameter tomography with the Jordan–Moore–Gibson–Thompson equation in frequency domainBarbara Kaltenbacher
Solving inverse acoustic obstacle scattering problem from phaseless far-field measurement using deep neural network surrogatesYuxin Fan, Jiho Hong and Bangti Jin
Bayesian approach for two-dimensional interior inverse scattering problem in elasticityJiajia Wang and Fang Zeng
MCMC-Net: accelerating Markov Chain Monte Carlo with neural networks for inverse problemsSudeb Majee, Anuj Abhishek, Thilo Strauss and Taufiquar Khan
Well-posed questions for ill-posed inverse problems: a note in memory of Pierre SabatierGaoming Chen, Fadil Santosa and William W Symes

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IPNet Digest Volume 32, Number 8 20 November 2025

Today's Editor: Matti Lassas University of Helsinki

Today's Topics:

1. Postdoctoral Researcher at LUT
2. Table of contents (AIMS)
3. Table of contents

Submissions for IPNet Digest: submit-ipnet@helsinki.fi

Information about IPNet: https://www.helsinki.fi/en/researchgroups/inverse-problems/ipnet-inverse-problems-network

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From: Toni Karvonen Toni.Karvonen@lut.fi
Date: Monday 3 November 2025
Subject: Postdoctoral Researcher at LUT

Link to call: https://lut.rekrytointi.com/paikat/index.php?jid=1369&o=A_RJ

We are seeking a researcher for a two-year fixed-term position in approximation and statistical inference at LUT University. The position is based in the Applied Mathematics Research Unit, which is part of the Department of Computational Engineering.

The position is ideal for candidates with experience in methodology, theory, or applications related to one or more of the following areas: kernel-based methods, such as Gaussian processes or radial basis functions and related techniques; quasi-Monte Carlo methods; information-based complexity; Bayesian inverse problems; and uncertainty quantification.

What we expect

You are expected to have a doctoral degree in mathematics, statistics, computer science, or a related field by the start of the employment relationship. This position emphasizes research, and your research duties will be tailored to match your background and expertise. Other responsibilities may include contributing to teaching and supervising bachelor's and master's thesis students.

What we offer you

You will be working in a supportive and collaborative academic environment, in close cooperation with experienced colleagues such as Associate Professor Toni Karvonen, Professor Tapio Helin, and Associate Professor Vesa Kaarnioja. Benefits include a holiday bonus, generous annual leave, occupational health care, and flexible hybrid work arrangements, requiring regular presence at the Lappeenranta campus.

Employment details

The position is full-time and fixed-term for two years, including a six-month trial period. The starting date is negotiable. The position follows a working hours system of 1,612 hours per year in accordance with the Collective Agreement for Finnish Universities.

The salary is based on the Finnish university salary system's pay scale for teaching and research staff, requirement levels 5–6. The starting salary is approximately EUR 4200–4900 per month, depending on your experience and qualifications. The work starts with a six-month trial period.

Interested? Please submit your application by 30 November 2025 at midnight Finnish local time (UTC+2h). Fill out the online application form and attach the following documents in English or Finnish and in PDF format:

- A cover letter briefly describing your research interests (max. 1 page)
- A curriculum vitae (max. 2 pages)
- A full list of publications highlighting the three most significant ones
- A copy of your doctoral diploma if your doctoral degree is complete; if the original documents are not in English, Finnish, or Swedish, each document must be accompanied by an official certified translation into English or Finnish
- A copy of or a link to your doctoral dissertation if your doctoral degree is complete

Further information

For further information, please contact Associate Professor Toni Karvonen, toni.karvonen@lut.fi. See also https://tskarvone.github.io/.

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From: Charley Denton cdenton@aimsciences.org
Date: Tuesday, 28 October, 2025
Subject: IPNet Digest table of contents submission

IPI February 2026 Vol. 20 articles:

1. **Landweber–Kaczmarz method for inverse problems using multiple repeated measurements**

   Nan Yu, Yuxin Xia, Zhenwu Fu and Yong Chen

2. On the optimal choice of the illumination function in photoacoustic tomography
Phuoc-Truong Huynh and Barbara Kaltenbacher
3. A statistical framework and analysis for perfect radar pulse compression
Neil K. Chada, Petteri Piiroinen and Lassi Roininen
4. Fast partial Fourier transforms for large-scale ptychography
Ricardo Parada, Samy Wu Fung and Stanley Osher
5. Asymptotic approaches in inverse problems for depolymerization estimation
Marie Doumic and Philippe Moireau
6. Efficient algorithms for mixed noise removal via nonlocal low-rank regularization
Ashley Prater-Bennette, Minghao Rostami, Lixin Shen, Erin E. Tripp and Jiangyu Yu
7. Regularization within two-parameters for identification heat-coefficient in the parabolic equation
Luis Eduardo Olivar Robayo and Héctor Andrés Granada Díaz
8. Neural networks for threshold dynamics reconstruction
Elisa Negrini, Almanzo Jiahe Gao, Abigail Bowering, Wei Zhu and Luca Capogna
9. Two parabolic inverse problems for an equation with unbounded zero-order coefficient
Mourad Choulli
10. Simultaneous determination of initial value and source term for time-fractional wave-diffusion equations
Paola Loreti, Daniela Sforza and Masahiro Yamamoto
11. A novel inverse scattering method using localized incidence with enhanced imaging resolution
Deyue Zhang, Mengjiao Bai, Yan Chang and Yukun Guo
12. Analysis of the interior transmission problem in an unbounded locally perturbed periodic strip
Houssem Haddar and Nouha Jenhani
13. Identification of the spatial dependent source and the fractional order in a time-fractional

convection diffusion-wave equation
Maoli Chang and Ting Wei
14. A novel direct imaging method for passive inverse obstacle scattering problem
Yunwen Yin and Liang Yan
15. Corrigendum to "An inverse problem for the Sturm-Liouville pencil with arbitrary entire functions in the boundary condition" [Inverse Probl. Imaging 14 (2020) 153-169]
Chuan-Fu Yang, Natalia Bondarenko and Xiao-Chuan Xu

Inverse Problems and Imaging
Charley Denton
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From: noreply@iopscience.org
Date: Monday, 6 October, 2025
Subject: Inverse Problems, Volume 41, Number 9, September 2025

Papers

A Fourier finite volume approach for the optical inverse problem of quantitative photoacoustic tomography
David J Chappell
Stability estimates for an inverse potential problem by partial Neumann-to-Dirichlet map
Xiaomeng Zhao and Ganghua Yuan
The obstacle scattering for the biharmonic wave equation
Chengyu Wu and Jiaqing Yang
An inverse problem related to an elasto-plastic beam
Laurent Bourgeois and Jean-François Mercier
Modeling, analysis, and numerical methods for shape identification of moving geometric inverse source and potential of parabolic problems
Wei Fan and Shengfeng Zhu
VARPROX: a primal-dual variable projection method for the minimization of penalized separable non-linear least squares
A Marmin and F J P Richard
A new strategy for convergence rates of non-stationary asymptotical regularization method for linear inverse problems
Rong Wang, De-Han Chen, Ting Cheng and Daijun Jiang
On optimality and bounds for internal solutions generated from boundary data-driven Gramians
V Druskin, S Moskow and M Zaslavsky
An adaptive detection approach for image deblurring with impulse noise
Xueying Zeng, Yuchen Li, Yiqiu Dong and Si Li
Accuracy improvement in ensemble Kalman inversion through data-informed ensemble selection
Ruben Harris and Claudia Schillings
On the required number of electrodes for uniqueness and convex reformulation in an inverse coefficient problem
Andrej Brojatsch and Bastian Harrach
Hyper-pyramid-adapted shearlet transform with application to compressive level set estimation
Azhar Yousuf, Agnipratim Nag, Vineet Ghule and Ajit Rajwade
An inverse random source problem of sub-diffusion equations with fractional Brownian motion on an unbounded domain
Yuxuan Gong and Xiang Xu

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