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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/math4dl-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
IDea_Lab, University of Graz
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. Dauszickaite, 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. Tabcart and J. W. Pearson, Saddle point preconditioners for weak-constraint 4D-Var, pp. 197-220

- Susanne Bradley and Chen Greif, Augmentation-based preconditioners for saddle-point systems with singular leading blocks, pp. 221-237
- E. B. Kovac and A. Perkovic, Convergence of the Eberlein diagonalization method under generalized serial pivot strategies, pp. 238-255
- R. Altmann and M. Deiml, A novel iterative time integration scheme for linear poroelasticity, pp. 256-275
- J. Liesen and J. Ramme, Spectral properties of certain nonsymmetric saddle point matrices, pp. 276-291
- S. Pozza and N. Van Buggenhout, A new Legendre polynomial-based approach for non-autonomous linear ODEs, pp. 292-326
- S. Kindermann and W. Zellinger, A short-term rational Krylov method for linear inverse problems, pp. 327-350
- K. Atkinson, D. Chien, and O. Hansen, Constructing diffeomorphisms between simply connected plane domains-part 2, pp. 351-363
- S. Miodragovic, N. Truhar, and I. Kuzmanovic Ivicic, Relative perturbation $\tan(\theta)$ -theorems for definite matrix pairs, pp. 364-380
- A. Frommer, G. Ramirez-Hidalgo, M. Schweitzer, and M. Tsolakis, Polynomial preconditioning for the action of the matrix square root and inverse square root, pp. 381-404
- N. Bazzarra, J. R. Fernandez, and R. Quintanilla, Analysis of a one-dimensional nonlocal thermoelastic problem, pp. 405-420
- T. Chen and G. Meurant, Near-optimal convergence of the full orthogonalization method, pp. 421-427
- L. Bialas-Ciez, D. J. Kenne, A. Sommariva, and M. Vianello, Evaluating Lebesgue constants by Chebyshev polynomial meshes on cube, simplex, and ball, pp. 428-445
- H. Bouda, C. Allouch, K. Kant, and Z. El Allali, Error analysis of a Jacobi modified projection-type method for weakly singular Volterra-Hammerstein integral equations, pp. 446-470
- Sk. Safique Ahmad and P. Khatun, Structured condition numbers for a linear function of the solution of the generalized saddle point problem, pp. 471-500
- Marco Sutti, A single shooting method with approximate Frechet derivative for computing geodesics on the Stiefel manifold, pp. 501-519
- F. Cassini, Efficient third-order tensor-oriented directional splitting for exponential integrators, pp. 520-540
- P. Junghanns and C. Laurita, A stable BIE method for the Laplace equation with Neumann boundary conditions in domains with piecewise smooth boundaries, pp. 541-588
- V. Kaarnioja and A. Rupp, Quasi-Monte Carlo and discontinuous Galerkin, pp. 589-617

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](#)
Zihui 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 \$L_n/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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