IPNet Digest Volume 28, Number 08 September 14, 2021 Today's Editor: Patricia (Patti) K. Lamm, Michigan State University Today's Topics: New Book: Inverse Problems and Carleman Estimates PhD/Postdocs: Math Modeling, Ultrasound Imaging at Univ. of Vienna PhD Position: Plasmonic Resonances/Inverse Problems at Göttingen PhD/Postdoc: Online Optimisation, Inverse Problems at the Univ. of Helsinki Postdoc: Uncertainty Quantification, Inverse Problems at RWTH Aachen PhD Position: Inverse Problems at Norwegian Univ of Life Sciences Table of Contents: Inverse Problems in Science and Engineering Submissions for IPNet Digest: Mail to ipnet-digest@math.msu.edu Information about IPNet: https://ipnet.math.msu.edu/ From: Mikhail Klibanov <mklibanv@uncc.edu> Date: Thursday, August 26, 2021 Subject: Inverse Problems and Carleman Estimates: a new book Dear Colleagues, I am happy to inform you that a new book on Inverse Problems is very recently published by De Gruyter. This book is available online at http://www.degruyter.com/books/978-3-11-074541-2 and through other distributors (like Amazon etc.). The retail price of your book is EUR 159.95 / USD 183.99 / GBP 145.50. AUTHORS: Michael V. Klibanov and Jingzhi Li TITLE: Inverse Problems and Carleman Estimates: Global Uniqueness, Global Convergence and Experimental Data PUBLISHER: De Gruvter DATE OF PUBLICATION: 2021 About this book This book summarizes the main analytical and numerical results of Carleman estimates. In the analytical part, Carleman estimates for three main types of Partial Differential Equations (PDEs) are derived. In the numerical part, first numerical methods are proposed to solve ill-posed Cauchy problems for both linear and guasilinear PDEs. Next, various versions of the convexification method are developed for a number of Coefficient Inverse Problems. Author information M.V. Klibanov, University of North Carolina, Charlotte, USA; Jingzhi Li, Southern University of Science and Technology, Shenzen, China

Best regards, Michael Klibanov

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From: Min Hadler <min.hadler@univie.ac.at> Date: Thursday, August 12, 2021 Subject: PhD- and Postdoc Position in Mathematical Modeling, University of Vienna

Dear Colleagues,

We would like to announce a open PhD research position and a Postdoc position in Mathematical Modeling at the Faculty of Mathematics at University of Vienna. Please find the announcements attached. Many thanks for your support!

Kind regards, Min Hadler

https://www.csc.univie.ac.at/files/CDL\_Postdoc\_Position.pdf

https://www.csc.univie.ac.at/files/CDL\_PhD%20Position.pdf

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Submitted by: Mag.a Min Hadler Faculty of Mathematics University of Vienna Oskar-Morgenstern-Platz 1 A-1090 Vienna T +43-1-4277-55771 E min.hadler@univie.ac.at

From: "Hohage, Thorsten" <hohage@math.uni-goettingen.de>
Date: Tuesday, August 31, 2021
Subject: PhD position on Plasmonic Resonances/Inverse Problems at Götttingen

The Collaborative Research Center (CRC) 1456 Mathematics of Experiment: The

challenge of indirect measurements in the natural sciences at the Georg-August-University Göttingen offers the position of a PhD student (75% TV-L E13) for three years starting Oct. 15, 2021. The researcher will work on the project C01 "Density matrix reconstructions in ultrafast free electron optics" in the research group of Thorsten Hohage, co-supervised by Claus Ropers regarding physical aspects. Depending on the interests of the candidate different directions of research are possible. One focus could be the numerical and analytical study of plasmonic resonances described by Maxwell's equations and inference on such resonances from experimental data. Another potential focus is the design and analysis of algorithms for inverse problems with matrix-valued unknowns.

Your profile:

- You hold a MSc degree (or equivalent) in mathematics or a related field.

- You have a background in inverse problems, partial differential equations or optimization.

- You are interested to work in an interdisciplinary team with an experimental lab and ideally have some background knowledge of physics.

- You are fully proficient in written and spoken English.

Your application including a curriculum vitae, a letter of motivation, copies of your certificates and contact information of at least two references should be submitted to the online application platform

https://lotus2.gwdg.de/uni/uzdv/perso/knr\_100841.nsf by September 21, 2021.

Submitted by: Prof. Dr. Thorsten Hohage Institut für Numerische und Angewandte Mathematik Georg-August Universität Göttingen http://ip.math.uni-goettingen.de/

From: "Tuomo Valkonen" <tuomov@iki.fi> Date: September 13, 2021 Subject: PhD student or postdoc in online optimisation / inverse problems at the University of Helsinki

I have available at the University of Helsinki a position for a PhD student or a postdoc to work on online optimisation for dynamic inverse problems. The simplest example of such a problem is video reconstruction while more advanced application problems include industrial and other process monitoring, such as the flow of a fluid in a tube to detect impurities. Depending on the chosen candidate's wishes, the work can either involve the development and numerical study of online optimisation methods, or the analytical study of relevant problems.

For details see
https://urldefense.com/v3/\_\_https://www2.helsinki.fi/en/open-positions/phdstudent-or-postdoctoral-researcher-in-online-optimization-for-dynamicinversion\_\_;!!HXCxUKc!gsJMoZw5dcy4Q-TkQZ5480F0i6X-MzNm2aRR\_k8wZPSCk4VTct2Cg\_iI1b4DTNx62bB5GM\$ .

From: Raul Tempone tempone@uq.rwth-aachen.de [via NADIGEST] Date: August 19, 2021 Subject: Postdoc Positions, UQ, RWTH Aachen

The Alexander von Humboldt Chair of Mathematics for Uncertainty Quantification (MATH4UQ) of Prof. Raul Tempone at RWTH Aachen invites applications for several postdoctoral positions. The successful candidates will perform mathematical and computational research and become an active part of an international research network with a wide scope and high visibility. The main scope of the MATH4UQ Chair is to develop efficient numerical methods for solving forward and inverse problems, including optimal control and optimal experimental design, involving stochastic and random differential equations. Successful candidates should hold a Ph.D. degree in mathematics, computer science, computational engineering sciences, or related fields. They should have expertise in at least one of the following areas: uncertainty quantification, machine learning, data science, numerical analysis, stochastic optimal control, stochastic optimization, optimal experimental design, inverse problems as well as stochastic simulation and approximation. The position comes with a teaching duty.

Required: Ph.D. degree in mathematics, computer science, computational engineering sciences, or related fields, High motivation, the ability to carry out research independently as well as to work in interdisciplinary teams, Proficiency in written and spoken English.

Desired: Experience in performing collaborative research, Experience teaching in German, proficiency in written and spoken German.

What we offer: Wide scope, world-class interdisciplinary scientific research within a highly connected and motivated team.

Applications must contain a letter of motivation, a CV including a list of publications, and copies of degree certificates, along with contact details of at least two academic referees. Please forward your application package to Prof. Tempone at tempone@uq.rwth-aachen.de. For full consideration, please apply by September 30, 2021. However, applications will be accepted until the positions are filled.

From: Ole Elvetun ole.elvetun@nmbu.no [via NADIGEST] Date: August 18, 2021 Subject: PhD Position, Inverse Problems, Norwegian Univ of Life Sciences

The Faculty of Science and Technology at the Norwegian University of Life Sciences (NMBU) has a vacant PhD-position related to the project Problem-dependent regularization techniques. The PhD position is for a period of 3 years, or up to 4 years if teaching and other work duties are agreed.

In the project we seek a better understanding of inverse problems when the

forward operator has a non-trivial null space, and we will analyze the potential of applying problem-dependent regularization to inverse problems involving EEG and ECG data.

We will furthermore investigate the properties of the technique as a feature selection method in machine learning.

The PhD position is placed in the Norwegian government pay scale position code 1017. PhD fellows are normally placed in pay grade 54 (NOK 491.200,-) (approx. 47.000 EUR/year) on the Norwegian Government salary scale upon employment and follow ordinary meriting regulations.

Deadline: September 30th, 2021.

For further information and to apply, see https://urldefense.com/v3/\_\_https://www.jobbnorge.no/en/available-jobs/job/ 210224/phd-position-within-applied-\_\_;!!HXCxUKc! jUwvN2STvB6bCs5iFwNosTu0a48y1DcGBttsQix5w-IICPP0pcXTl2ZPwnNH29Gy\$ mathematics

From: "alerts@tandfonline.com" <alerts@tandfonline.com> Date: Wednesday, August 25, 2021 Subject: Inverse Problems in Science and Engineering, Volume 29, Issue 9, September 2021 is now available online on Taylor & Francis Online

Inverse Problems in Science and Engineering September 2021 Volume 29, Issue 9

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https://www.tandfonline.com/toc/gipe20/29/9
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