

Today's Editor: Patricia (Patti) K. Lamm, Michigan State University

Today's Topics:

Symposium: Abstract Submissions for Inverse Problems Symposium 2016
PhD Position: Large Scale Hydrodynamic Imaging in the Ocean
University Lectureship: Mathematics of Information
Table of Contents: Journal of Inverse and Ill-posed Problems
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Submissions for IPNet Digest:

Mail to ipnet-digest@math.msu.edu

Information about IPNet:

<http://ipnet.math.msu.edu>

From: "McMasters, Robert L" <mcmastersrl@vmi.edu>
Subject: Inverse Problems Symposium Announcement
Date: December 21, 2015

Abstract submissions will accepted for the Inverse Problems Symposium for 2016
<http://inverseproblems2016.org>
starting on 15 January 2016.

The conference will be held in Lexington Virginia at the Virginia Military Institute
5-7 June 2016.

Topics included in the conference are listed below:

- A. Mathematical and Statistical Aspects of Inverse Problems
 - 1. Theory and Methods of Inverse Problems
 - 2. Stability and Error Analysis
- B. Design of Experiments
 - 1. Optimal Design of Experiments
 - 2. Analysis of Actual Experimental Data
- C. Applications
 - 1. Heat Transfer, Applied Mechanics, Controls, Other Engineering Disciplines
 - 2. Biology, Biochemistry, Genetics, and Medicine
 - 3. Nondestructive Evaluation
 - 4. Nanoengineering
 - 5. Tomography and Inverse Scattering
 - 6. Geology and Environmental Phenomena
 - 7. Economics
 - 8. Food and Bioprocessing
 - 9. Bioengineering
 - 10. Packaging

Submitted by: Bob McMasters

From: "Smith, Lynn" <L.Smith@hw.ac.uk>
Subject: 3 Yr PhD: LAKHsMI - Large Scale Hydrodynamic Imaging in the Ocean
Date: December 4, 2015

Immediately Available: 3 Yr PhD: LAKHsMI - Large Scale Hydrodynamic Imaging in the Ocean

3 year PhD Position: Ocean Systems Laboratory, Edinburgh Centre for Robotics, Heriot-Watt University

Immediate Start

LAKHsMI: Large Scale Hydrodynamic Imaging in the Ocean From An Artificial Lateral Line

A three-year PhD by research position is available based in the Ocean Systems Laboratory at Heriot-Watt University and affiliated to the Edinburgh Centre for Robotics, starting as soon as possible as part of the LAKSHMI EU H2020 Blue Growth 09 programme 2015-2019.

PROJECT:

LAKHsMI will develop a new bio-inspired technology to make continuous and cost-effective measurements of the near-field, large-scale hydrodynamic situation for environmental monitoring in cabled ocean observatories, performance and damage detection in marine renewable energy and unwanted ingress in port/harbor security. The project will design, manufacture, and field test prototype smart sensor cables that measure differential pressure and temperature on the ocean floor, enabling high resolution imaging of the surrounding volume in space and time through simple, inexpensive, very low power transduction. The cables can be connecting with existing cabled ocean observatories. The technology is inspired by the biophysics of fish hydrodynamic sensing and is scalable from meters to possibly hundreds of kilometers with a high sampling frequency. Software interfaces developed in the course of the project will be integrated with existing observatory systems (such as EUROGOOS). Tests will be conducted in a tank, a pool, and in an ocean observatory. The project involves a consortium of engineers, computer scientists, oceanographers, environmentalists and companies, from Tallinn, Groningen, Aberdeen, Orkney and Edinburgh.

The PhD:

The PhD will research novel signal processing techniques for imaging hydrodynamic activities in the water column at a variety of resolutions and ranges. It will also research suitable embedded detection and classification approaches for significant or relevant hydrodynamic events using the array data. These are intended to produce useful information products for interdisciplinary oceanography and seismic geophysics,

tracking fish and fish schools, (sub)surface traffic in harbours and marine renewable turbine performance.

Applications are sought from interested EU CITIZENS ONLY with MSc (Distinction) or 1st class honours degree (or equivalent) in electrical and electronic engineering, signal processing, applied mathematics or robotics, and with practical aptitudes/interests in field trials with sensors. Interests and skills in probabilistic methods, beamforming approaches and fluid dynamics would be an advantage. Some practical electrical engineering skills for data acquisition from the sensor array are also expected.

The position is of three years duration, starting as soon as possible, with all fees covered and an annual stipend of up to £15k.

Further reading:

Yingchen Yang et al, Distant touch hydrodynamic imaging with an artificial lateral line. Proc Natl Acad Sci U S A. 2006 Dec 12; 103(50): 18891-
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1748147/>

Curcic-Blake B and Netten S M v 2006 Source localization encoding in the fish lateral line J. Exp. Biol. 209 1548-59

Institution:

The Edinburgh Centre for Robotics (ECR) is a £35M joint venture between Heriot-Watt University and the University of Edinburgh, supported by EPSRC, Industry and the Universities. It captures the expertise of over 30 principle investigators of international standing from 12 cross-disciplinary research groups and institutes across the Schools of Engineering and Physical Sciences, Informatics and the Department of Computer Science The Centre includes an EPSRC Centre for Doctoral Training in Robotics and Autonomous Systems which trains innovation-ready postgraduates, and ROBOTARIUM, a £7.2M national capital equipment facility. This studentship will be affiliated with the Centre.

Annual Report:

<https://www.dropbox.com/s/7k1ro8y7xkue8oq/2015.10.12%20ECR%20Annual%20Review14-15%20%28final%29.pdf?dl=0>

The Ocean Systems Laboratory at Heriot-Watt University, Edinburgh is a multidisciplinary science and engineering research centre that innovates, applies and teaches world class advances in autonomous systems, sensor modelling/processing, and underwater acoustic system theory/design for offshore, marine science, renewable energy and security applications. It has a world class reputation, spinning out companies of the calibre of <http://www.seebyte.com> <http://www.codaoctopus.com> and <http://www.hydrason.com>

Further information:

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Centre for Robotics: www.edinburgh-robotics.org Ocean Systems Laboratory:
http://www.oceansystemslab-heriotwatt.com
https://www.youtube.com/user/oceanslabheriotwatt

From: Mathematics HR Office <HR-Office@maths.cam.ac.uk>
Subject: Vacancy: University Lectureship in the Mathematics of Information, University
of Cambridge
Date: December 22, 2015

Applications are invited for a University Lectureship in the Mathematics of
Information at the University of Cambridge in the Department of Applied Mathematics
and Theoretical Physics (DAMTP) to commence on 1 September 2016 or by agreement.
Appointment will be made at an appropriate point on the University scale
(£38,896-£49,230) and will be for a probationary period of five years with appointment
to the retiring age thereafter, subject to satisfactory performance.

Candidates should hold a PhD or equivalent in mathematics or a closely related
subject, and have an outstanding record of research in the mathematics of data
science. Preference will be given to experts in applied and computational analysis.
Willingness to engage in an interdisciplinary and cross-cutting research is very
desirable.

This Lectureship is affiliated with the new Cantab Capital Institute for Mathematics
of Information which is hosted within the Faculty of Mathematics. It accommodates
research activity on fundamental mathematical problems and methodology for
understanding, analysing, processing and simulating data. Data science research
performed in the Institute is at the highest international level, aiming to extract
the relevant information from large- and high-dimensional data with a predictable
certainty.

For further information on the position as well as instructions on how to apply please
go to the Cambridge University Job Opportunities page at
<http://www.jobs.cam.ac.uk/job/8736/>

Submitted by: Tracey Flack, HR Office Administrator (Mornings Only)
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Department of Pure Mathematics & Mathematical Statistics
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From: <noreply@degruyter.com>
Subject: Contents, 'Journal of Inverse and Ill-posed Problems'
Date: December 1, 2015

On a mixed problem for the parabolic Lamé type operator
Puzyrev, Roman / Shlapunov, Alexander

Mixed spatially varying L2-BV regularization of inverse ill-posed problems
Mazzieri, Gisela L. / Spies, Ruben D. / Temperini, Karina G.

Global uniqueness and stability in determining the electric potential coefficient of
an inverse problem for Schrödinger equations on Riemannian manifolds
Triggiani, Roberto / Zhang, Zhifei

On fractional Tikhonov regularization
Gerth, Daniel / Klann, Esther / Ramlau, Ronny / Reichel, Lothar

Finding scattering data for a time-harmonic wave equation with first order
perturbation from the Dirichlet-to-Neumann map
Agaltsov, Alexey D.

Inverse problems for variable order differential operators with regular singularities
on graphs
Yurko, Vjacheslav A.

Regularization strategy for determining laser beam quality parameters
Regińska, Teresa / Regiński, Kazimierz

Stochastic algorithms for solving linear and nonlinear inverse ill-posed problems for
particle size retrieving and x-ray diffraction analysis of epitaxial films
Sabelfeld, Karl K. / Mozartova, Nadezhda S.

Fast Toeplitz linear system inversion for solving two-dimensional acoustic inverse
problem
Kabanikhin, Sergey I. / Novikov, Nikita S. / Oseledets, Ivan V. / Shishlenin, Maxim A.

<http://www.degruyter.com/view/j/jiip.2015.23.issue-6/issue-files/jiip.2015.23.issue-6.xml>

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From: Romas Baronas <romas.baronas@mif.vu.lt>
Subject: Table of Contents, Nonlinear Analysis: Modelling and Control 21:1
Date: December 1, 2015 at 11:49:41 AM PST
To: <ipnet-digest@math.msu.edu>

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Positive solutions for a class of fractional boundary value problems

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Optimal control problem for Lengyel–Epstein model with obstacles and state constraints

Jiashan Zheng

On fixed point results for α -implicit contractions in quasi-metric spaces and consequences

Hassen Aydi, Manel Jellali, Erdal Karapınar

New synchronization criteria for an array of neural networks with hybrid coupling and time-varying delays

Yanke Du, Rui Xu

Spatiotemporal superposed rogue-wave-like breathers in a (3+1)-dimensional variable-coefficient nonlinear Schrödinger equation

Hai-Ping Zhu, Ya-Jiang Chen

Projection error evaluation for large multidimensional data sets

Kotryna Paulauskiene, Olga Kurasova

Fixed points for Kannan type contractions in uniform spaces endowed with a graph

Aris Aghanians, Kourosh Nourouzi

Boundary value problem with integral condition for a Blasius type equation

Sergey Smirnov

On the optimality of some multi-point methods for finding multiple roots of nonlinear equation

Nebojsa M. Ralevic, Dejan Cebic

Modelling of water droplets heat and mass transfer in the course of phase transitions: I. Phase transitions cycle peculiarities and iterative scheme of numerical research control and optimization

Gintautas Miliauskas, Arvydas Adomavicius, Monika Maziukiene

A free on-line edition is available at: <http://www.mii.lt/NA/>

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