**AIP 2007**

**First International Congress of IPIA**


# Schedule


June 25–29, 2007
University of British Columbia Campus
Vancouver, Canada

# GENERAL SCHEDULE
## AIP 2007
## First International Congress IPIA

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|------|--------|---------|-----------|----------|--------|
| 8:30 AM | 8:30–9:30 AM Coffee and Registration | | | | |
| 9:00–9:45 AM | 9:30–9:45 AM Opening and Calderon Prize | W. Symes | Calderon Prize lecture | S. Smale | O. Ghattas |
| 9:45–10:30 AM | I. Daubechies | J. Schotland | J. McLaughlin | D. Isaacson | F-T. Kroode |
| 10:30–11:00 AM | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ |
| 11:00–11:45 AM | M. Burger | P. Stefanov | E. Candes | K. Astala | J-K. Seo |
| 11:45–12:30 AM | G. Bal | D. Calvetti | M. Fink | J. Zou | F. Santosa |
| 12:30–2:00 PM | ⟨⟨ Lunch ⟩⟩ | ⟨⟨ Lunch ⟩⟩ | ⟨⟨ Lunch ⟩⟩ | ⟨⟨ Lunch ⟩⟩ | ⟨⟨ Lunch ⟩⟩ |
| 2:00–4:00 PM | Mini-symposia | Mini-symposia | Mini-symposia | Mini-symposia | Mini-symposia |
| 4:00–4:30 PM | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ | ⟨⟨ Coffee ⟩⟩ |
| 4:30–6:30 PM | Mini-symposia | Mini-symposia | Mini-symposia | Mini-symposia | Mini-symposia |
| 7:30 PM | Reception (see below) | | | | |
| 7:45 PM | | | | Banquet (see below) | |
| 8:00 PM | | | IPIA Meeting (FSC 1005) | | |

**All invited talks will be held in FSC 1005**.

**Reception, 7:30 PM Monday June 25:** Rich Ocean Seafood Restaurant, 777 West Broadway. (Directions are available on the Social Events link of the conference website.)

**Banquet, 7:45 PM Thursday June 28:** Sun Sui Wah Seafood Restaurant, 3888 Main Street. (Directions are available on the Social Events link of the conference website.)

# Invited Talks, Monday June 25

9:45–10:30 AM

    Speaker:   Ingrid Daubechies (Princeton University)

    Title:       "*Sparsity and Inverse problems*"

11:00–11:45 AM

    Speaker:   Martin Burger (Westfaelische Wilhelms Universitaet Muenster)

    Title:       "*Regularization with Singular Energies*"

11:45 AM – 12:30 PM

    Speaker:   Guillaume Bal (Columbia University)

    Title:       "*Imaging in random media and kinetic models*"

# Invited Talks, Tuesday June 26

9:00–9:45 AM

    Speaker:   Bill Symes, (Rice University)

    Title:       "*The inverse problem of seismic velocities*"

9:45–10:30 AM

    Speaker:   John Schotland (University of Pennsylvania)

    Title:       "*Inverse Scattering and Nanoscale Optical Imaging*"

11:00–11:45 AM

    Speaker:   Pleman Stefanov (Purdue University)

    Title:       "*Recovering anisotropic metrics from travel times*"

11:45 AM – 12:30 PM

    Speaker:   Daniela Calvetti (Case Western Reserve University)

    Title:       "*Statistical analysis of computational metabolic models in cell biology*"

# Invited Talks, Wednesday June 27

9:45–10:30 AM

    Speaker:   Joyce McLaughlin (RPI)

    Title:       "*Imaging Shear Stiffness in Tissue from Dynamic Wave Propagation Data*"

11:00–11:45 AM

    Speaker:   Emmanuel Candes (California Institute of Technology)

    Title:       "*Compressed Sensing*"

11:45 AM – 12:30 PM

    Speaker:   Matthias Fink (University Denis Diderot

    Title:       "*Time-Reversed Waves and Super-Resolution*"

# Invited Talks, Thursday June 28

9:00–9:45 AM

    Speaker:   Stephen Smale (Toyota Technology Institute at Chicago)

    Title:       "*Learning Theory and Sampling*"

9:45–10:30 AM

    Speaker:   David Isaacson (RPI)

    Title:       "*Electrical Impedance Tomography and Spectroscopy*"

11:00–11:45 AM

    Speaker:   Kari Astala (University of Helsinki)

    Title:       "*Complex analytic methods in inverse problems*"

11:45 AM – 12:30 PM

    Speaker:   Jun Zou (The Chinese University of Hong Kong)

    Title:       "*Inverse Obstacle Scattering: Some Theory and Numerics*"

# Invited Talks, Friday June 29

9:00–9:45 AM

    Speaker:  Omar Ghattas (The University of Texas at Austin)

    Title:       "*Prospects for Scaling of Seismic Inversion to Petaflops Systems*"

9:45–10:30 AM

    Speaker:  Fons Ten Kroode (Shell EP R&D)

    Title:       "*Amundsen inversion - an alternative for surface related multiple elimination?*"

11:00–11:45 AM

    Speaker:  Jin Keun Seo (Yonsei University)

    Title:       "*Electrical Impedance Tomography and Magnetic Resonance EIT*"

11:45 AM – 12:30 PM

    Speaker:  Fadil Santosa (University of Minnesota)

    Title:       "*An inverse problem arising in photolithography*"

# Schedule of Mini-Symposia

| Date/Room | FSC 1005 | FSC 1221 | FSC 1003 | FSC 1001 | MCLD 228 | MCLD 254 | MCLD 214 |
|---|---|---|---|---|---|---|---|
| Monday 2:00–4:00 | Qian–Zhao | Kubo I | Massone–Pike I | Caponnetto–Rosasco | Piana I | Kabanikhin | |
| Monday 4:30–6:30 | Lassas–Päivärinta | Arridge | Massone–Pike II | Gibson–Lamoureux | Piana II | Nakamura–Potthast | Klibanov–Yamamoto |
| Tuesday 2:00–4:00 | Hermann | Kang–Ammari | Kubo II | Finch | Somersalo | Celler–Trummer | |
| Tuesday 4:30–6:30 | De Hoop I | Munk I | Kubo III | Scherzer | Fox | Cakoni | Contributed I |
| Wednesday 2:00–4:00 | Borcea I | Munk II | Kinahan | Oberai | Mueller–Siltanen I | Neubauer–Ramlau I | Contributed II |
| Wednesday 4:30–6:30 | Borcea II | Cristobal | Beretta–Francini | Haber–Oldenburg | Mueller–Siltanen II | Cimrak–Slodicka | Contributed III |
| Thursday 2:00–4:00 | Santosa | Qian–Zhao II | Seo | Isakov | Neubauer–Ramlau II | Bryan | Lesnic |
| Thursday 4:30–6:30 | Kubo IV | Quinto | Kang–Ammari II | De Hoop II | Leitao | Arens | |
| Friday 2:00–4:00 | Herrmann–Symes | Kubo V | Weder | Luke–Potthast–Sylvester | Ring | Contributed IV | Contributed V |

Unless indicated otherwise, all talks in mini-symposia will begin on the hour or half-hour.

# Mini-Symposia, Monday June 25

**Monday June 25, 2:00–4:00 PM**

Traveltime tomography: theory, numerics and applications (I) – FSC 1005
    (Jianliang Qian and Hongkai Zhao)

Image reconstruction in Optics and Astronomy (I) – FSC 1003
    (Anna Maria Massone and Roy Pike)

Identification of defects and cracks (I) – FSC 1221
    (Shiro Kubo)

Learning from Examples as an Inverse Problem – FSC 1001
    (Andrea Caponnetto and Lorenzo Rosasco)

The Magnetoencephalography (MEG) Problem (I) – MCLD 228
    (Michele Piana)

Numerical Methods for Multidimensional Inverse Hyperbolic Problems – MCLD 254
    (Sergey Kabanikhin)


**Monday June 25, 4:30–6:30 PM**

Optical Tomography – FSC 1221
    (Simon Arridge)

Advances on Analytic and Geometrical Methods for Inverse Problems – FSC 1005
    (Matti Lassas and Lassi Päivärinta)

Wavelets in Inverse Problems – FSC 1001
    (Peter Gibson and Michael Lamoureux)

Recent methods for identifying discontinuities in media – MCLD 254
    (Gen Nakamura and Roland Potthast)

The Magnetoencephalography (MEG) Problem (II) – MCLD 228
    (Michele Piana)

Carleman estimates in inverse problems: theory and numerical methods – MCLD 214
    (Mihael Klibanov and Masahiro Yamamoto)

Image reconstruction in Optics and Astronomy (II) – FSC 1003
    (Anna Maria Massone and Roy Pike)

# Mini-Symposia, Tuesday June 26

**Tuesday June 26, 2:00–4:00 PM**

Recovery from incomplete data: applications to imaging – FSC 1005
(Felix Herrmann)

Current Trends in Biomedical Imaging (I) – FSC 1221
(Habib Ammari and Hyeonbae Kang)

Identification of defects and cracks (II) – FSC 1003
(Shiro Kubo)

Mixed mode medical imaging – FSC 1001
(David Finch)

Inverse Problems in Cell Biology – MCLD 228
(Erkki Somersalo)

New Frontiers in Nuclear Medicine Image Reconstruction – MCLD 254
(Anna Celler and Manfred Trummer)

**Tuesday June 26, 4:30–6:30 PM**

Phase Space Transforms, Computation, and Inverse Scattering (I) – FSC 1005
(Maarten de Hoop)

Statistical inverse problems and shape constraints (I) – FSC 1221
(Axel Munk)

Identification of defects and cracks (III) – FSC 1003
(Shiro Kubo)

Spherical Means in Action – FSC 1001
(Otmar Scherzer)

Computational Inference in Inverse Problems – MCLD 228
(Colin Fox)

Inverse Problems in Electromagnetic Scattering Theory – MCLD 254
(Fioralba Cakoni)

Contributed (I) – MCLD 214

# Mini-Symposia, Wednesday June 27

**Wednesday June 27, 2:00–4:00 PM**

Inverse Problems for Wave Propagation (I) – FSC 1005
   (Liliana Borcea)

Statistical inverse problems and shape constraints (II) – FSC 1221
   (Axel Munk)

Inverse Problems in Biomechanics – FSC 1001
   (Assad Oberai)

Adaptive Regularization Techniques (I) – MCLD 254
   (Andreas Neubauer and Ronny Ramlau)

Medical Image Reconstruction for PET and CT – FSC 1003
   (Paul Kinahan)

Advances in Electrical Impedance Tomography (I) – MCLD 228
   (Jennifer Mueller and Samuli Siltanen)

Contributed (II) – MCLD 214


**Wednesday June 27, 4:30–6:30 PM**

Inverse Problems for Wave Propagation (II) – FSC 1005
   (Liliana Borcea)

Superresolution Imaging – FSC 1221
   (Gabriel Cristobal)

Numerical methods for distributed parameter estimation in PDE's – FSC 1001
   (Eldad Haber and Doug Oldenburg)

Determination of defects from boundary measurements – FSC 1003
   (Elena Beretta and Elisa Francini)

Recovery of Missing Parameters in PDE Models – MCLD 254
   (Ivan Cimrak and Marian Slodicka)

Advances in Electrical Impedance Tomography (II) – MCLD 228
   (Jennifer Mueller and Samuli Siltanen)

Contributed (III) – MCLD 214

# Mini-Symposia, Thursday June 28

**Thurday June 28, 2:00–4:00 PM**

Inverse Problems from Industrial Applications – FSC 1005
   (Fadil Santosa)

Inverse Problems in Engineering – MCLD 214
   (Daniel Lesnic)

Inverse Problems in Thermal Imaging – MCLD 254
   (Kurt Bryan)

Adaptive Regularization Techniques (II) – MCLD 228
   (Andreas Neubauer and Ronny Ramlau)

New techniques in Electrical Impedance Imaging – FSC 1003
   (Jin-Keung Seo)

Inverse Problems for Systems – FSC 1001
   (Victor Isakov)

Traveltime tomography: theory, numerics and applications (II) – FSC 1221
   (Jianliang Qian and Hongkai Zhao)


**Thurday June 28, 4:30–6:30 PM**

Identification of defects and cracks (III) – FSC 1005
   (Shiro Kubo)

The Factorization Method in Inverse Problems and its Applications – MCLD 254
   (Tilo Arens)

Nonstationary inverse problems – MCLD 228
   (Antonio Leitao)

New Topics in Tomography – FSC 1221
   (Eric T. Quinto)

Phase Space Transforms, Computation, and Inverse Scattering (II) – FSC 1001
   (Maarten de Hoop)

Current Trends in Biomedical Imaging (II) – FSC 1003
   (Habib Ammari and Hyeonbae Kang)

# Mini-Symposia, Friday June 29

**Friday June 29, 2:00–4:00 PM**

Identification of defects and cracks (V) – FSC 1221
 (Shiro Kubo)

Software for Inverse Problems – FSC 1005
 (Felix Herrmann and William Symes)

Inverse Spectral and Scattering Theories and Inverse Boundary Value Problems – FSC 1003
 (Ricardo Weder)

Level-Set Methods for Shape Identification Problems – MCLD 228
 (Wolfgang Ring)

Limited Data Inverse Scattering Techniques – FSC 1001
 (Russel Luke, Roland Potthast and John Sylvester)

Contributed (IV) – MCLD 254

Contributed (V) – MCLD 214

**Traveltime tomography: theory, numerics and applications (I)**

Monday June 25, 2:00–4:00 PM
Room: FSC 1005
Organizer(s): Jianliang Qian and Hongkai Zhao

  Speaker:  Uhlmann, Gunther (University of Washington)
  Title:    "*Travel Time Transmission and Reflection Tomography*"

  Speaker:  Symes, William (Rice University)
  Title:    "*A tale of two tomographies: traveltime and waveform*"

  Speaker:  Blanch, Joakim (Nexus Geosciences)
  Title:    "*Modeling of, and considerations in cross-well and VSP (pre-) survey design*"

  Speaker:  Zhao, Hongkai (UC Irvine)
  Title:    "*Fast sweeping method for convex Hamilton-Jacobi equations*"

**Image reconstruction in Optics and Astronomy (I)**

Monday June 25, 2:00–4:00 PM
Room: FSC 1003
Organizer(s): Anna Maria Massone and Roy Pike

  Speaker:  Pike, Roy (King's College)
  Title:    "*An update of Hopkins' analysis of the optical disc player using singular system theory*"

  Speaker:  Poonawala, Amyn and Peyman, Milanfar (University of California, Santa Cruz)
  Title:    "*Mask Design for Resolution Enhancement: An Inverse Problem in Optical Microlithography*"

  Speaker:  Ramlau, Ronny (RICAM)
  Title:    "*A Non-Iterative Regularization Scheme for Blind Deconvolution*"

## Identification of defects and cracks (I)

Monday June 25, 2:00–4:00 PM
Room: FSC 1221
Organizer(s): Shiro Kubo

Speaker: Gibson, Nathan (Oregon State University)
Title: "*Electromagnetic Characterization of Damage in Complex Dielectrics*"

Speaker: Steiner, Gerald (Graz University of Technology)
Title: "*A Bayesian filtering approach for inclusion detection with ultrasound reflection tomography*"

Speaker: Scherzer, Otmar (University Innsbruck)
Title: "*Kaczmarz methods for the solution of nonlinear ill-posed equations*"

Speaker: Pereverzyev (junior), Sergei (Technische Universitity Kaiserslautern)
Title: "*Approximate Solution of Nonlinear Inverse Problems*"


## Learning from Examples as an Inverse Problem

Monday June 25, 2:00–4:00 PM
Room: FSC 1001
Organizer(s): Andrea Caponnetto and Lorenzo Rosasco

Speaker: De Mol, Christine (Universite Libre de Bruxelles)
Title: "*Sparse and smooth solutions for learning and inverse problems*"

Speaker: Pereverzyev, Sergei (Austrian Academy of Sciences, Johann-Radon-Institute (RICAM)
Title: "*Adaptive Regularization Algorithms in Learning Theory*"

Speaker: Belkin, Mikhail (Ohio State University)
Title: "*Regularization and Geometry of Learning*"

Speaker: Yao, Yuan (Stanford University)
Title: "*Topology Learning of High Dimensional Probability Density Functions*"

## The Magnetoencephalography (MEG) Problem (I)

Monday June 25, 2:00–4:00 PM
Room: MCLD 228
Organizer(s): Michele Piana

    Speaker: Van Veen, Barry (University of Wisconsin)
    Title: "*Space-Time Sparse MEG Reconstruction*"

    Speaker: Zumer, Johanna (University of California, San Francisco)
    Title: "*Probabilistic methods for MEG source reconstruction incorporating noise suppression*"

    Speaker: Pursiainen, Sampsa (Helsinki University of Technology)
    Title: "*Effective EEG/MEG forward simulation through hp-FEM*"


## Numerical Methods for Multidimensional Inverse Hyperbolic Problems

Monday June 25, 2:00–4:00 PM
Room: MCLD 254
Organizer(s): Sergey Kabanikhin

    Speaker: Shishlenin, Maxim (Russian Academy of Science)
    Title: "*Numerical analysis of methods for solving inverse acoustic problems*"

    Speaker: Klibanov, Michael (University of North Carolina at Charlotte)
    Title: "*Some Numerical Methods for Hyperbolic Inverse Problems*"

    Speaker: Iskakov, Kazizat (KazNPU)
    Title: "*Optimization method for solving two dimensional inverse problem for hyperbolic equation*"

    Speaker: Kabanikhin, Sergey (Russian Academy of Science)
    Title: "*Dirichlet-to-Neumann map and direct numerical methods in inverse multidimensional hyperbolic problems*"

## Optical Tomography

Monday June 25, 4:30–6:30 PM
Room: FSC 1221
Organizer(s): Simon Arridge

Speaker: Schweiger, Martin (University College London)
Title: "*Jacobian-free Newton-Krylove reconstruction of model parameters in optical tomography*"

Speaker: Kolehmainen, Ville (University of Kuopio)
Title: "*Approximation Errors and Model Reduction in Optical Tomography*"

Speaker: Ripoll, Jorge (FORTH)
Title: "*Challenges and Applications of Optical Tomography in Microscopy*"

Speaker: Dorn, Oliver (Universidad Carlos III de Madrid)
Title: "*Optical and Fluorescence Tomography using a Transport Model in 2D*"


## Advances on Analytic and Geometrical Methods for Inverse Problems

Monday June 25, 4:30–6:30 PM
Room: FSC 1005
Organizer(s): Matti Lassas and Lassi Päivärinta

Speaker: Greenleaf, Allan (University of Rochester)
Title: "*An FIO calculus for linearized marine seismic imaging*"

Speaker: Dos Santos Ferreira, David (Universite Paris 13)
Title: "*Determining a magnetic Schrödinger operator from partial Cauchy data*"

Speaker: Ylinen, Lauri (University of Helsinki)
Title: "*Two-Dimensional Tomography with Unknown View Angles*"

Speaker: Kirpichnikova, Anna (The University of Edinburgh)
Title: "*Inverse boundary spectral problem for Riemannian polyhedra*"

## Wavelets in Inverse Problems

Monday June 25, 4:30–6:30 PM
Room: FSC 1001
Organizer(s): Peter Gibson and Michael Lamoureux

Speaker: Louis, Alfred K. (Saarland University)
Title: *"Dynamic Inverse Problems: Efficient Algorithms and Approximate Inverse"*

Speaker: Fornasier, Massimo (Princeton University)
Title: *"Accelerated iterative thresholding algorithms"*

Speaker: Saab, Rayan (University of British Columbia)
Title: *"Source Separation Via Iterative Thresholding in Some Transform Domain"*

Speaker: Daubechies, Ingrid (Princeton University)
Title: *"Sparse wavelet expansions for an inverse problem in Astrophysics"*


## Recent methods for identifying discontinuities in media

Monday June 25, 4:30–6:30 PM
Room: MCLD 254
Organizer(s): Gen Nakamura and Roland Potthast

Speaker: Cakoni, Fioralba (University of Delaware)
Title: *"The Computation of Lower Bounds for the Norm of the Index of Refraction in an Anisotropic Media from Far Field Data"*

Speaker: Munk, Axel (Georg-August Universiät Göttingen)
Title: *"Jump Estimation in Inverse Problems – Distributional Results"*

Speaker: Heck, Horst (TU Darmstadt)
Title: *"Reconstruction of obstacles immersed in an incompressible fluid"*

Speaker: Sini, Mourad (Austrian Academy of Sciences)
Title: *"Determination of complex obstacles from scattering data"*

### The Magnetoencephalography (MEG) Problem (II)

Monday June 25, 4:30–6:30 PM
Room: MCLD 228
Organizer(s): Michele Piana

Speaker:  Pizzella, Vittorio (Universit di Chieti)
Title:    "*Integrating MEG/EEG with fMRI*"

Speaker:  Lin, Fa-Hsuan (Athinoula A. Martinos Center for Biomedical Imaging)
Title:    "*Optimization of high spatiotemporal resolution brain imaging using combined MEG, MRI and fMRI*"

Speaker:  Jun, Sung Chan (Los Alamos National Laboratory)
Title:    "*Source inversion technique using probabalistic Bayesian inference: MEG/EEG/fM*"

Speaker:  Sorrentino, Alberto (Universita di Genova)
Title:    "*Solving the magnetoencephalography inverse problem with particle filters*"


### Carleman estimates in inverse problems: theory and numerical methods

Monday June 25, 4:30–6:30 PM
Room: MCLD 214
Organizer(s): Mihael Klibanov and Masahiro Yamamoto

Speaker:  Clason, Christian (Zentrum Mathematic, TU Mnchen)
Title:    "*A non-standard numerical method for variational data assimilation for a convection diffusion equation*"

Speaker:  Gaitan, Patricia (Universit de Provence)
Title:    "*Inverse problem for the Schrödinger operator in an unbounded strip*"

Speaker:  Kaltenbacher, Barbara (University of Stuttgart)
Title:    "*Uniqueness for a Parameter Identification Problem for a Nonlinear Parabolic Equation with Application in Population Dynamics and Magnetics*"

Speaker:  Poisson, Olivier (Universit de Provence)
Title:    "*Uniqueness for discontinuous coefficients in an inverse problem for the heat equation*"

Speaker:  Klibanov, Michael (University of North Carolina at Charlotte)
Title:    "*Carleman estimates and inverse problems: theory and numerical methods*"

## Image reconstruction in Optics and Astronomy (II)

Monday June 25, 4:30–6:30 PM
Room: FSC 1003
Organizer(s): Anna Maria Massone and Roy Pike

    Speaker:  Anthoine, Sandrine (CNRS)
    Title:        *"Simultaneous separation and deconvolution of multispectral data"*

    Speaker:  Bertero, Mario (Universita di Genova)
    Title:        *"Recent advances in the reconstruction of astronomical images"*

    Speaker:  Massone, Anna Maria (CNR-INFM LAMIA)
    Title:        *"Imaging Spectroscopy of hard x-ray sources in solar flares using regularized analysis of source visibilities"*

    Speaker:  Theys, Celine (Laboratoire Universitaire d'Astrophysique de Nice)
    Title:        *"Restoration of astrophysical images, statistical influence of the camera"*


## Recovery from incomplete data: applications to imaging

Tuesday June 26, 2:00–4:00 PM
Room: FSC 1005
Organizer(s): Felix Herrmann

    Speaker:  Simons, Frederik J (Princeton University)
    Title:        *"On the recovery of potential field anomalies on the surface of a sphere from incomplete and noisy data taken at an altitude above their source"*

    Speaker:  Wakin, Michael (California Institute of Technology)
    Title:        *"Sparse representations and low-dimensional geometry in image recovery"*

    Speaker:  Demanet, Laurent (Stanford University)
    Title:        *"Fourier Sketching: how to approximate the FFT in sublinear time"*

    Speaker:  Herrmann, Felix (University of British Columbia)
    Title:        *"Stable Seismic Data Recovery"*

## Current Trends in Biomedical Imaging (I)

Tuesday June 26, 2:00–4:00 PM
Room: FSC 1221
Organizer(s): Habib Ammari and Hyeonbae Kang

Speaker: Sinkus, Ralph
Title: *"MR-Elastography: A unique tool to non-invasively measure the complex shear modulus of tissue – application to breast, livver, Alzheimer's disease and rheology."*

Speaker: Van Veen, Barry (University of Wisconsin)
Title: *"Dimensionality Reduction in Inverse Scattering: Applications to Microwave Imaging for Breast Cancer Detection"*

Speaker: Bauer, Frank (Johannes Kepler University, Linz)
Title: *"An Alternative Approach to Parallel MRI"*

Speaker: Tanter, Mickael
Title: *"Time reversal in ultrasound medical applications"*

## Identification of defects and cracks (II)

Tuesday June 26, 2:00–4:00 PM
Room: FSC 1003
Organizer(s): Shiro Kubo

Speaker: Kaltenbacher, Barbara (University of Stuttgart)
Title: *"Determination of cracks in piezoelectric media by Newton-multilevel methods"*

Speaker: Fujiwara, Hiroshi (Kyoto University)
Title: *"Identifying discontinuity in real inversion of the Laplace transform with the Tikhonov regularization method"*

Speaker: Leitao, Antonio (Federal University of Santa Catarina)
Title: *"Identification of a discontinuous coefficient in semiconductor equations"*

Speaker: Klibanov, Michael (University of North Carolina at Charlotte)
Title: *"Some Inverse Problems for Partial Differential Equations"*

## Mixed mode medical imaging

Tuesday June 26, 2:00–4:00 PM
Room: FSC 1001
Organizer(s): David Finch

Speaker: Xu, Yuan (Ryerson University)
Title: "*Magneto-Acousto-Electrical Tomography: a New Imaging Modality for Electrical Impedance*"

Speaker: Kunyansky, Leonid (University of Arizona)
Title: "*A series solution and a fast algorithm for the inversion of the spherical mean Radon transform*"

Speaker: Anastasio, Mark (Illinois Institute of Technology)
Title: "*Fourier-based image reconstruction in photoacoustic tomography*"

Speaker: Clason, Christian
Title: "*The quasi-reversibility method for thermoacoustic tomography in a heterogeneous medium*"


## Inverse Problems in Cell Biology

Tuesday June 26, 2:00–4:00 PM
Room: MCLD 228
Organizer(s): Erkki Somersalo

Speaker: Kuceyeski, Amy (Case Western Reserve University)
Title: "*A spatially distributed metabolic model of the liver in fasted, resting state*"

Speaker: Heino, Jenni (Helsinki University of Technology)
Title: "*Computational modelling of cellular level metabolism*"

Speaker: Occhipinti, Rossana (Case University)
Title: "*Bayesian Model Selection for Brain Metabolism*"

Speaker: Bell, Brad (University of Washington)
Title: "*MCMC Estimation of Nonlinear Dynamical Systems*"

**New Frontiers in Nuclear Medicine Image Reconstruction**

Tuesday June 26, 2:00–4:00 PM
Room: MCLD 254
Organizer(s): Anna Celler and Manfred Trummer

Speaker: Gullberg, Grant (E.O. Lawrence Berkelely National Lab)
Title: "*The Challenge of Uniqueness in the Application of Dynamic SPECT*"

Speaker: Sitek, Arkadiusz (Harvard Medical School)
Title: "*Image Reconstruction in Emission Tomography using Point Clouds*"

Speaker: Shcherbinin, Sergey (University of British Columbia)
Title: "*An Investigation of an Accuracy of Iterative Reconstructions in Quantitative SPECT*"

Speaker: Qranfal, Joe (Simon Fraser University)
Title: "*Regularized Kalman algorithm for dynamic SPECT reconstruction*"

**Phase Space Transforms, Computation, and Inverse Scattering (I)**

Tuesday June 26, 4:30–6:30 PM
Room: FSC 1005
Organizer(s): Maarten de Hoop

Speaker: Loris, Ignace (Vrije Universiteit Brussel)
Title: "*Tomographic inverson with wavelets and l1-norm penalization*"

Speaker: Stolk, Chris (University of Twente)
Title: "*Amplitudes in seismic migration*"

Speaker: Andersson, Fredrik (Lund)
Title: To be announced

Speaker: Duchkov, Anton (Purdue University)
Title: "*Migration velocity analysis using velocity continuation of seismic image gathers*"

## Statistical inverse problems and shape constraints (I)

Tuesday June 26, 4:30–6:30 PM
Room: FSC 1221
Organizer(s): Axel Munk

    Speaker:   Scherzer, Otmar (University Innsbruck), (60 mins)
    Title:        "*Taut-String for High Dimensional Data*"

    Speaker:   Hohage, Thorsten (University of Goettingen)
    Title:        "*Newton Methods for Nonlinear Inverse Problems with Random Noise*"

    Speaker:   Bigot, Jeremie (University Paul Sabatier)
    Title:        "*Estimation of the mean of a set of noisy images using a random diffeomorphic matching parametric model*"

## Identification of defects and cracks (III)

Tuesday June 26, 4:30–6:30 PM
Room: FSC 1003
Organizer(s): Shiro Kubo

    Speaker:   Ivanyshyn, Olha (Georg-August University of Goettingen)
    Title:        "*Inverse Scattering for Planar Cracks via Nonlinear Integral Equations*"

    Speaker:   Tanuma, Kazumi (Gunma University)
    Title:        "*Perturbation formulas for phase velocity and polarization of Rayleigh waves in prestressed anisotropic media*"

    Speaker:   Hyvonen, Nuutti (Helsinki University of Technology)
    Title:        "*Locating transparent cavities in optical absorption and scattering tomography*"

    Speaker:   Kang, Hyeonbae (Seoul National Univeristy)
    Title:        "*Three methods of internal corrosion detection*"

## Spherical Means in Action

Tuesday June 26, 4:30–6:30 PM
Room: FSC 1001
Organizer(s): Otmar Scherzer

Speaker:  Haltmeier, Markus (University Innsbruck)
Title:  "*Limited Angle Photoacoustic Tomography with Line detector*"

Speaker:  Fidler, Thomas (University of Innsbruck)
Title:  "*An integral invariant for star-shaped domains*"

Speaker:  Grasmair, Markus (University of Innsbruck) joint with Patch, Sarah (Milwaukee)
Title:  "*Integral Invariants*"

Speaker:  Finch, David (Oregon State University)
Title:  "*Inversion of spherical means and the wave equation*"


## Computational Inference in Inverse Problems

Tuesday June 26, 4:30–6:30 PM
Room: MCLD 228
Organizer(s): Colin Fox

Speaker:  Fox, Colin (Auckland University)
Title:  "*Bayesian Inference for Geothermal Model Calibration*"

Speaker:  Moulton, David (Los Alamos National Laboratory)
Title:  "*Multilevel approximations in sample-based inversion from the Dirichlet-to-Neumann map*"

Speaker:  Herbei, Radu (Ohio State University)
Title:  "*Quasi-3D Statistical Inversion of Oceanograpic Tracer data*"

**Inverse Problems in Electromagnetic Scattering Theory**

Tuesday June 26, 4:30–6:30 PM
Room: MCLD 254
Organizer(s): Fioralba Cakoni

    Speaker:  Cakoni, Fioralba (University of Delaware)
    Title:     *"A variational approach for the solution of the electromagnetic interior transmission problem for anisotropic media"*

    Speaker:  Arens, Tilo (Universität Karlsruhe)
    Title:     *"Convergence of the Linear Sampling Method"*

    Speaker:  Piana, Michael (Universit di Verona)
    Title:     *"A new formulation of the linear sampling method: spatial resolution and post-processing"*

    Speaker:  Pieper, Martin (Georg-August University of Goettingen)
    Title:     *"Nonlinear integral equations for an inverse electromagnetic scattering problem"*


**Contributed (I)**

Tuesday June 26, 4:30–6:30 PM
Room: MCLD 214

    Speaker:  Sacks, Paul (Iowa State University)
    Title:     *"Singular inverse spectral problems"*

    Speaker:  Timonov, Alexandre (University of South Carolina Upstate)
    Title:     *"A numerical study of some globally convergent algorithms for solving non-overdetermined coefficient inverse problems"*

    Speaker:  Gaburro, Romina (University of Limerick, Ireland)
    Title:     *"Microlocal Analysis of Synthetic Aperture Radar Imaging in the Presence of a Vertical Wall"*

    Speaker:  Smirnova, Alexandra (Georgia State University)
    Title:     *"Iteratively Regularized Guass-Newton Method with Parameter Decomposition"*

**Inverse Problems for Wave Propagation (I)**

Wednesday June 27, 2:00–4:00 PM
Room: FSC 1005
Organizer(s): Liliana Borcea

Speaker: Solna, Knut (University of California, Irvine)
Title: "*Detection and Imaging with Incoherent Signals*"

Speaker: Kim, Arnold (University of California, Merced)
Title: "*Reconstructing a thin absorbing obstacle in a half space of tissue*"

Speaker: Borcea, Liliana (Rice University)
Title: "*Optimal Waveform Design for Array Imaging*"

Speaker: Guevara Vasquez, Fernando (Stanford University)
Title: "*Selective illumination of extended targets in array imaging*"


**Statistical inverse problems and shape constraints (II)**

Wednesday June 27, 2:00–4:00 PM
Room: FSC 1221
Organizer(s): Axel Munk

Speaker: Somersalo, Erkki (Helsinki University of Technology), (60 mins)
Title: "*Recovery of Shapes, Hypermodels and Bayesian Learning*"

Speaker: Jongbloed, Geurt (Technische Universiteit Delft)
Title: "*Density estimation in the Current Status model*"

Speaker: Mizera, Ivan (University of Alberta)
Title: "*Regularized estimation of probability density: likelihoods, penalties, and algorithms*"

## Inverse Problems in Biomechanics

Wednesday June 27, 2:00–4:00 PM
Room: FSC 1001
Organizer(s): Assad Oberai

Speaker: Gockenbach, Mark (Michigan Technical University)
Title: *"Numerical Analysis of Elliptical Inverse Problems with Interior Data"*

Speaker: Barbone, Paul (Boston University)
Title: *"Forward and inverse problems in multiphase mechanics of soft tissues"*

Speaker: Renzi, Daniel (Rensselaer Polytechnic Institute)
Title: *"Recovering the shear wave speed parameters in an anisotropic medium"*

Speaker: Oberai, Assad (Rensselaer Polytechnic Institute)
Title: *"Nonlinear elasticity imaging"*


## Adaptive Regularization Techniques (I)

Wednesday June 27, 2:00–4:00 PM
Room: MCLD 254
Organizer(s): Andreas Neubauer and Ronny Ramlau

Speaker: Egger, Herbert (University of Achen)
Title: *"Y-Scale Regularization"*

Speaker: Kindermann, Stefan (University of Linz)
Title: *"A relaxation algorithm for solving inverse interface problems"*

Speaker: Lorenz, Dirk (University of Bremen)
Title: *"On the convergence speed of iterative methods for linear inverse problems with sparsity constraints"*

Speaker: Neubauer, Andreas (University of Linz)
Title: *"Solution of Ill-Posed Problems via Adaptive Grid Regularization"*

## Medical Image Reconstruction for PET and CT

Wednesday June 27, 2:00–4:00 PM
Room: FSC 1003
Organizer(s): Paul Kinahan

    Speaker:  Champley, Kyle (University of Washington)
    Title:      "*Planogram Rebinning with the Frequency-Distance Relationship*"

    Speaker:  Courdurier, Matias (University of Washington)
    Title:      "*Solving the Interior Problem in Computed Tomography Using a Priori Knowledge*"

    Speaker:  Noo, Frederic (University of Utah)
    Title:      "*Two-dimensional SPECT imaging with trucated projections*"

    Speaker:  Pan, Xiaochuan (University of Chicago)
    Title:      "*Image Reconstruction in Diffraction Tomography*"

## Advances in Electrical Impedance Tomography (I)

Wednesday June 27, 2:00–4:00 PM
Room: MCLD 228
Organizer(s): Jennifer Mueller and Samuli Siltanen

    Speaker:  Eckel, Harry (Universität Gttingen)
    Title:      "*An idea to couple a BEM and a grid-based methkod for EIT via an evolutionary algorithm*"

    Speaker:  Gonzalez-Lima, Raul (University of Sao Paulo)
    Title:      "*Online transition matrix identification of the state evolution model for the extended Kalman filter in electrical impedance tomography* "

    Speaker:  Takanori Ide (Tokyo Metropolitan University)
    Title:      "*Detection of inclusions from localized boundary measurements in the electrical conductivity problem*"

    Speaker:  Kolehmainen, Ville (University of Kuopio)
    Title:      "*Sedimentation monitoring using EIT*"

## Contributed (II)

Wednesday June 27, 2:00–4:00 PM
Room: MCLD 214

Speaker: McCarthy, Maeve (Murray State University)
Title: "*Parameter Identification in a Parabolic System Modeling Chemotaxis*"

Speaker: Boverman, Gregory (Rensselaer Polytechnic Institute)
Title: "*Spatio-Temporal Imaging of Compression-Induced Hemodynamics in the Breast With Diffuse Optical Tomography: Simulation Study and Preliminary Clinical Results*"

Speaker: Marcuzzi, Fabio (Universita di Padova)
Title: "*Efficient reconstruction of corrosion profiles by infrared thermography*"

Speaker: Bell, Brad (University of Washington)
Title: "*Semi-Blind Deconvolution*"


## Inverse Problems for Wave Propagation (II)

Wednesday June 27, 4:30–6:30 PM
Room: FSC 1005
Organizer(s): Liliana Borcea

Speaker: Fishman, Lou (MDF International)
Title: "*Some Thoughts on the Inclusion of Multiple Scattering in a Phase-Space-Based Marching Velocity Field Reconstruction Algorithm*"

Speaker: Issa, Leila (Rice University)
Title: "*Imaging in cluttered waveguides*"

Speaker: Moskow, Shari (University of Florida)
Title: "*Scattering and resonances of thin dielectric structures*"

Speaker: Poliannikov, Oleg G. (Massachussetts Institute of Technology)
Title: "*Focusing of time reversed random coda*"

## Superresolution Imaging

Wednesday June 27, 4:30–6:30 PM
Room: FSC 1221
Organizer(s): Gabriel Cristobal

Speaker: Nagy, James (Emory University)
Title: "*Numerical Methods for Coupled Super-Resolution*"

Speaker: Sroubek, Filip (Institute of Information Theory and Automation)
Title: "*Simultaneous Superresolution and Blind Deconvolution*"

Speaker: van Vliet, Lucas (Delft University of Technology)
Title: "*Robust Super-Resolution without Regularization*"

Speaker: Pickering, Mark (University of New South Wales)
Title: "*Robust Super-Resolution Mosaicing of Compressed Images*"


## Numerical methods for distributed parameter estimation in PDE's

Wednesday June 27, 4:30–6:30 PM
Room: FSC 1001
Organizer(s): Eldad Haber and Doug Oldenburg

Speaker: Biros, George (University of Pennsylvania)
Title: "*Multigrid algorithms for reconstruction problems with parabolic PDE constraints*"

Speaker: Bangerth, Wolfgang (Texas A&M University)
Title: "*Adaptive finite element methods for inverse imaging problems*"

Speaker: Najm, Habib N., (Sandia)
Title: To be announced

Speaker: Haber, Eldad (Emory University)
Title: "*Adaptive multilevel refinement for parameter estimation problems*"

## Determination of defects from boundary measurements

Wednesday June 27, 4:30–6:30 PM
Room: FSC 1003
Organizer(s): Elena Beretta and Elisa Francini

    Speaker:  Ammari, Habib (CNRS)
    Title:      *"Electrical Impedance Tomography by Elastic Perturbation"*

    Speaker:  Beretta, Elena (joint with E. Francini and S. Vessella), (Sapienza University of Rome)
    Title:      *"Determination of a linear crack in an elastic body from boundary measurements - Lipschitz Stability"*

    Speaker:  Kress, Rainer (University of Goettingen)
    Title:      *"Integral equations for inverse problems in corrosion detection"*

    Speaker:  Rondi, Luca (Universita degli Studi di Triest)
    Title:      *"Stable determination of polyhedra by a single far-field measurement"*

## Recovery of Missing Parameters in PDE Models

Wednesday June 27, 4:30–6:30 PM
Room: MCLD 228
Organizer(s): Ivan Cimrak and Marian Slodicka

    Speaker:  Slodicka, Marian (Ghent University)
    Title:      *"Recovery of missing boundary data for magnetic field in eddy-current problems: An iterative approach"*

    Speaker:  Melicher, Valdemar (Ghent University)
    Title:      *"Source identification in low-frequency electromagetism"*

    Speaker:  Cimrak, Ivan (Ghent University)
    Title:      *"Determination of precession and dissipation parameters in the micromagnetics"*

    Speaker:  Malengier, Benny (Ghent University)
    Title:      *"Inverse determination of interdiffusion coefficients in Si-Al-Fe alloys"*

## Advances in Electrical Impedance Tomography (II)

Wednesday June 27, 4:30–6:30 PM
Room: MCLD 254
Organizer(s): Jennifer Mueller and Samuli Siltanen

Speaker: Mikyoung Lim (Ecole Polytechnique)
Title: "*Reconstructing small perturbations of scatterers from electric or acoustic far-field measurements*"

Speaker: Mueller, Jennifer (Colorado State University)
Title: "*Reconstructions of experimental and simulated discontinuous conductivities by the D-bar method for EIT*"

Speaker: Siltanen, Samuli (Tampere University of Technology)
Title: "*Direct reconstruction of discontinuous conductivities using Beltrami equation* "

Speaker: Vauhkonen, Paivi Johanna (University of Kuopio)
Title: "*Computational aspects of EIT in cylindrical geometry*"

## Contributed (III)

Wednesday June 27, 4:30–6:30 PM
Room: MCLD 214

Speaker: Rantala, Maaria (PaloDEx Group)
Title: "*Wavelet-based reconstruction for limited angle X-ray tomography*"

Speaker: Chen, Xudong (National University of Singapore)
Title: "*Electromagnetic Imaging of Small Scatterrers using MUSIC*"

Speaker: Sincich, Eva (Austrian Academy of Sciences)
Title: "*Lipschitz stability for the inverse Robin problem*"

Speaker: Janicki, Marcin (Technical University of Lodz)
Title: "*Real TIme Temperature Estimation of Heat Sources in Integrated Circuits with Remote Temperature Sensors*"

## Inverse Problems from Industrial Applications

Thursday June 28, 2:00–4:00 PM
Room: FSC 1005
Organizer(s): Fadil Santosa

Speaker: Abubakar, Aria (Schlumberger Doll Research)
Title: "*Nonlinear inversion algorithms for the controlled-source electromagnetic data*"

Speaker: Madej, Darek (Motorola)
Title: "*Inverse problems in bar code decoding*"

Speaker: Voth, Eric (St Jude Medical, Inc.)
Title: "*Reconstruction of Cardiac Electrical Activity*"

Speaker: Toews, Carl (University of Minnesota)
Title: "*Position Registration from Voltage Measurements*"


## Inverse Problems in Engineering

Thursday June 28, 2:00–4:00 PM
Room: MCLD 214
Organizer(s): Daniel Lesnic

Speaker: Kaipio, Jari (University of Kuopio)
Title: "*Estimation of fluid flow in unsaturated porous medium*"

Speaker: Lesnic, Daniel (University of Leeds)
Title: "*Restoring Boundary Conditions in Heat Conduction*"

Speaker: Bonnet, Marc (Ecole Polytechnique)
Title: "*Higher-order topological sensitivity for elastodynamic inverse scattering*"

Speaker: Kassab, Alain (University of Central Florida)
Title: "*Singular-Superposition Method for the Inverse Geometric Problem - applications in heat transfer and electricity*"

## Inverse Problems in Thermal Imaging

Thursday June 28, 2:00–4:00 PM
Room: MCLD 254
Organizer(s): Kurt Bryan

    Speaker:  Ammari, Habib (CNRS)
    Title:      *"Direct Algorithms for Thermal Imaging of Small Inclusions"*

    Speaker:  Caudill, Lester (University of Richmond)
    Title:      *"Optimal Design Parameters for a Parabolic Inverse Problem"*

    Speaker:  Rondi, Luca (Universita degli Studi di Triest)
    Title:      *"Stability and instability for the determination of unknown isothermal surfaces"*

    Speaker:  Fasino, Dario (Universita di Udine)
    Title:      *"Boundary Conditions for nodestructive evaluation based on stationary infrared thermography"*


## Adaptive Regularization Techniques (II)

Thursday June 28, 2:00–4:00 PM
Room: MCLD 228
Organizer(s): Andreas Neubauer and Ronny Ramlau

    Speaker:  Ramlau, Ronny (RICAM)
    Title:      *"Regularization of Inverse Problems using sparsity constraints - Analysis and Applications"*

    Speaker:  Rauhut, Holger (University of Vienna)
    Title:      *"Algorithms for inverse problems with joint sparsity constraints"*

    Speaker:  Zhariy, Mariya (Zuse Institute Berlin)
    Title:      *"Frame-Based Adaptive Strategies for Iteratively Solving Linear Ill-posed Inverse Problems"*

**New techniques in Electrical Impedance Imaging.**

Thursday June 28, 2:00–4:00 PM
Room: FSC 1003
Organizer(s): Jin-Keung Seo

Speaker:  Woo, Eung Je (Kyung Hee University)
Title:  "*Conductivity Image Reconstruction in Magnetic Resonance Electrical Impedance Tomography (MREIT)*"

Speaker:  Kim, Sungwhan (Hanbat National University)
Title:  "*Breast Cancer Detection using Multi-frequency Electrical Impedance Imaging Technique*"

Speaker:  Habib Zribi(Impedance Imaging Research center)
Title:  "*Multi-frequency Electrical Impedance Tomography for Anomaly Detection and Imaging*"

Speaker:  Teayong Ha(National Institute of Mathematical Science, Korea)
Title:  "*Concrete Crack Detection Model using Electrical Impedance Tomography*"

**Inverse Problems for Systems**

Thursday June 28, 2:00–4:00 PM
Room: FSC 1001
Organizer(s): Victor Isakov

Speaker:  Eller, Matthias (Georgetown University)
Title:  "*Carleman estimates for some first-order systems of partial differential equations*"

Speaker:  Mazzucato, Anna L (Pennsylvania State University)
Title:  "*On uniqueness in the boundary inverse problem for anisotropic elastodynamics*"

Speaker:  Valdivia, Nicolas P. (Naval Research Laboratory)
Title:  "*Near-field Electromagnetic Holography: The inverse problem of electromagnetic continuation*"

Speaker:  Wang, Jenn-Nan (National Taiwan University)
Title:  "*Special solutions for some elliptic systems and applications*"

**Traveltime tomography: theory, numerics and applications (II)**

Thursday June 28, 2:00–4:00 PM
Room: FSC 1221
Organizer(s): Jianliang Qian and Hongkai Zhao

    Speaker:  Stefanov, Plamen (Purdue University)
    Title:      "*Local lens rigidity for a class of non-simple manifolds*"

    Speaker:  Chung, Eric (California Institute of Technology)
    Title:      "*A new phase space method for recovering index of refraction from travel times*"

    Speaker:  Leung, Shingyu (University of California, Irvine)
    Title:      "*Transmission Traveltime Tomography Based on Paraxial Liouville Equations and Level Set Formulations*"

    Speaker:  Qian, Jianliang (Wichita State University)
    Title:      "*An Adjoint State Method for Three-Dimensional Transmission Traveltime Tomography Using First-Arrivals*"

**Identification of defects and cracks (IV)**

Thursday June 28, 2:00–4:00 PM
Room: FSC 1005
Organizer(s): Shiro Kubo

    Speaker:  Rondi, Luca (Universita degli Studi di Triest)
    Title:      "*A variational approach to the reconstruction of cracks by boundary data*"

    Speaker:  Lam, Heung Fai (City University of Hong Kong)
    Title:      "*Crack detection of beam-type structures following the Bayesian system identification framework*"

    Speaker:  Kubo, Shiro (Osaka University)
    Title:      "*Passive Electric Potential CT Method for Crack Identification*"

**The Factorization Method in Inverse Problems and its Applications**

Thursday June 28, 4:30–6:30
Room: MCLD 254
Organizer(s): Tilo Arens

Speaker: Gebauer, Bastian (Austrian Academy of Sciences)
Title: "*Electric potentials with localized divergence properties*"

Speaker: Lechleiter, Armin (University of Karlsruhe)
Title: "*Factorization and Perturbation*"

Speaker: Hyvonen, Nuutti (Helsinki University of Technology)
Title: "*An implementation of the factorization method within the complete electrode model of electrical impedance tomography*"

Speaker: Luke, Russell
Title: "*On the Construction of Nonscattering Fields*"

**Nonstationary inverse problems**

Thursday June 28, 4:30–6:30 PM
Room: MCLD 228
Organizer(s): Antonio Leitao

Speaker: Louis, Alfred K. (Saarland University)
Title: "*Dynamic Inverse Problems: Efficient Algorithms and Approximate Inverse*"

Speaker: Pikkarainen, Hanna Katriina (Austrian Academy of Sciences)
Title: "*State estimation approach to nonstationary inverse problems*"

Speaker: Kindermann, Stefan (University of Linz)
Title: "*Dynamic programming principle for static and dynamic inverse problems*"

Speaker: Kuegler, Philipp (University of Linz / RICAM)
Title: "*Online parameter identification*"

**New Topics in Tomography**

Thursday June 28, 4:30–6:30
Room: FSC 1221
Organizer(s): Eric T. Quinto

Speaker: Kunyanksy, Leonid (University of Arizona)
Title: "*Explicit inversion formulas for the inversion of the spherical mean Radon transform*"

Speaker: Quinto, Eric Todd (Tufts University)
Title: "*Local tomography in electron microscopy*"

Speaker: Faridani, Abel (Oregon State University)
Title: "*Sampling Conditions and Numerical Analysis for 3D Helical CT*"

Speaker: Chou, Cheng-Ying (Illinois Institute of Technology)
Title: "*Image Reconstruction in X-Ray Phase-Contrast Tomography*"


**Phase Space Transforms, Computation, and Inverse Scattering (II)**

Thursday June 28, 4:30–6:30
Room: FSC 1001
Organizer(s): Maarten de Hoop

Speaker: de Hoop, Maarten V. (Purdue University)
Title: "*Inverse scattering of reflection seismic data in the reverse-time approach*"

Speaker: Salo, Mikko (University of Helsinki)
Title: "*Stability for solutions of wave equations*"

Speaker: Knudsen, Kim (Aalborg University)
Title: "*The Calderón problem with partial measurements*"

Speaker: Rachele, Lizabeth (Rensselaer Polytechnic Institute)
Title: "*Uniqueness of the travel time for any disjoint mode in anisotropic elastic media*"

## Current Trends in Biomedical Imaging (II)

Thursday June 28, 4:30–6:30
Room: FSC 1003
Organizer(s): Habib Ammari and Hyeonbae Kang

Speaker: Dassios, George (University of Cambridge)
Title: *"The scalar magnetic potential in meg."*

Speaker: Lee, Hyundae
Title: *"A method of biological tissues elasticity reconstruction using msgnetic resonance elastography measurements"*

Speaker: Schotland, John (University of Pennsylvania)
Title: *"Optical Tomography with Large Data Sets"*

Speaker: Lassas, Matti (Helsinki University of Technology)
Title: *"Invisibility and Inverse problems"*


## Identification of defects and cracks (V)

Friday June 29, 2:00–4:00 PM
Room: FSC 1221
Organizer(s): Shiro Kubo

Speaker: El Badia, Abdellatif (University of Technology of Compiegne)
Title: *"Inverse source problem in an advection dispersion reaction system"*

Speaker: Luke, Russell (University of Delaware)
Title: *"A MUSIC Algorithm for Crack Identification"*

Speaker: Suzuki, Toshio (Osaka University)
Title: *"Active Use of Piezoelectric Film for Identification of Cracks"*

## Software for Inverse Problems

Friday June 29, 2:00–4:00 PM
Room: FSC 1005
Organizer(s): Felix Herrmann and William Symes

    Speaker:   William W. Symes (Rice)
    Title:        "*Software for Time-dependent Inverse Problems*"

    Speaker:   Fomel, Sergey (University of Texas at Austin)
    Title:        "*Reproducible computational experiments using the Madagascar software package*"

    Speaker:   Herrmann, Felix (University of British Columbia)
    Title:        "*Seismic inversion through operator overloading*"


## Inverse Spectral and Scattering Theories and Inverse Boundary Value Problems

Friday June 29, 2:00–4:00 PM
Room: FSC 1003
Organizer(s): Ricardo Weder

    Speaker:   Eskin, Gregory (UCLA)
    Title:        "*Inverse problems for the Schrödinger equations with time-dependant electromagnetic potentials and the Aharonov-Bohm effect*"

    Speaker:   Ralston, James (UCLA)
    Title:        "*Inverse Spectral Problems in Rectangular Domains*"

    Speaker:   Li, Xiaosheng (University of Washington)
    Title:        "*Determination of viscosity in the stationary Navier-Stokes equations*"

    Speaker:   Weder, Ricardo (UNAM)
    Title:        "*A Rigorous Time-Domain Analysis of Full-Wave Electromagnetic Cloaking*"

## Level-Set Methods for Shape Identification Problems

Friday June 29, 2:00–4:00 PM
Room: MCLD 228
Organizer(s): Wolfgang Ring

    Speaker:  Ring, Wolfgang
    Title:      "*Level-set techniques for the solution of geometric inverse problems*"

    Speaker:  Villegas, Rossmary
    Title:      "*A generalized level set technique for the simultaneous reconstruction of geological regions and region-specific model-based internal permeability profiles of petroleum reservoirs from production data*"

    Speaker:  Klann, Esther (Radon Institute for Computational and Applied Mathematics)
    Title:      "*A Mumford-Shah level-set approach for the inversion and segmentation of SPECT data*"

    Speaker:  Burger, Martin (Westfaelische Wilhelms Universitaet Muenster)
    Title:      "*Preconditioned Level Set Flows*"


## Limited Data Inverse Scattering Techniques

Friday June 29, 2:00–4:00 PM
Room: FSC 1001
Organizer(s): Russel Luke, Roland Potthast and John Sylvester

    Speaker:  Tanoh, Germain (Simon Fraser University)
    Title:      "*Proximal Reconstruction Methods for Dynamic Inverse Problems in Emission Tomography*"

    Speaker:  Sylvester, John (University of Washington)
    Title:      "*Non-radiating Sources, Transmission Eigenvalues, and the Born Approximation*"

    Speaker:  Potthast, Roland (University of Reading)
    Title:      "*On the convergence of the no response test*"

    Speaker:  Kusiak, Steven (New Frontier Advisors)
    Title:      "*Identification and Characterization of a Moving Source in a General Parabolic Equation*"

## Contributed (IV)

Friday June 29, 2:00–4:00 PM
Room: MCLD 254

Speaker: Griesmaier, Roland (Johannes Gutenberg-University Mainz)
Title: *"An asymptotic factorization method for detecting small objects using electromagnetic scattering"*

Speaker: Lange, Arnaud (Institut Francais du Petrole)
Title: *"Genetic-based Characterization of Fractured Reservoirs from Interpreted Well Tests"*

Speaker: Trucu, Dumitru (University of Leeds)
Title: *"The Inverse Time-dependent Coefficient Identification Problem in Bio-Heat Transient Flow Equation"*

Speaker: Ji, Xiao-Yi (Texas Tech University)
Title: *"Frèchet-differentiation of functions of operators with application to testing the equality of covariance operators"*


## Contributed (V)

Friday June 29, 2:00–4:00 PM
Room: MCLD 214

Speaker: Routh, Partha (ConocoPhillips)
Title: *"Source Estimation from Pre-Stack Seismic Data using Nonlinear Bounded Minimization Technique"*

Speaker: Krishnan, Venky (University of Washington)
Title: *"A support theorem for the geodesic ray transform on real-analytic Riemannian manifolds"*

Speaker: Helin, Tapio (Helsinki University of Technology)
Title: *"A stochastic interpretation of the Mumford-Shah functional"*

Speaker: Ryan, Niall (University of Limeric)
Title: *"High-frequency anisotopic elastic inversion"*

Speaker: Ebrahimi, Mehran (University of Waterloo)
Title: *"Regularization schemes involving self-similarity in imaging inverse problems"*