Adaptive Data Analysis and Sparsity

Monday January 28, 2013

8:00–8:55 *Check-In/Light Breakfast (Hosted by IPAM)*

8:55–9:00 *Welcome and Opening Remarks*

9:00 *Session Chair: Tom Hou*

9:00–9:50 **Norden Huang** (National Central University)
Quantification of Nonlinearity and Nonstationarity

10:00–10:15 *Break*

10:15–11:05 **Patrick Flandrin** (École Normale Supérieure de Lyon)
On time-frequency sparsity and uncertainty

11:15–11:30 *Break*

11:30–12:20 **Zhaohua Wu** (Florida State University)
Ensemble Empirical Mode Decomposition

12:30–2:30 *Lunch (on your own)*

2:00 *Session Chair: Patrick Flandrin*

2:00–2:50 **Jose Nathan Kutz** (University of Washington)
Sparse sensing and machine learning strategies for characterizing complex dynamical systems

3:30–4:00 *Break*

4:00–4:50 **Chung-Kang Peng** (Harvard Medical School)
Biomedical Applications of Instantaneous Frequency of Nonlinear Oscillatory Patterns

5:00–6:30 *Reception and Poster Session (Hosted by IPAM)*

Tuesday January 29, 2013

8:00–9:00 *Continental Breakfast*

9:00 *Session Chair: Norden Huang*

9:00–9:50 **Ingrid Daubechies** (Duke University)

10:00–10:15 *Break*

(Tuesday schedule continued on next page)

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10:15–11:05 **Hau-Tieng Wu** (University of California, Berkeley (UC Berkeley))
Nonparametric and adaptive modeling of dynamic seasonality and trend with heteroscedastic and dependent errors

11:15–11:30 *Break*

11:30–12:20 **Thomas Hou** (California Institute of Technology)
Data Driven Time-Frequency Analysis

12:30–2:00 *Lunch (on your own)*

2:00 *Session Chair: Ingrid Daubechies*

2:00–2:50 **Lexing Ying** (Stanford University)
Synchrosqueezed wave packet transform

3:00–3:15 *Break*

3:15–4:05 **Zuoqiang Shi** (Department of Mathematical Sciences, Tsinghua University)
Iterative Matching Pursuit and its Application in Adaptive Time-Frequency Analysis

4:15–4:30 *Break*

4:30–5:20 **Yang Wang** (Michigan State University)

Wednesday January 30, 2013

8:00–9:00 *Continental Breakfast*

9:00 *Session Chair: Haomin Zhou*

9:00–9:50 **Stanley Osher** (University of California, Los Angeles (UCLA))
Sparse Dynamics for PDE's

10:00–10:15 *Break*

10:15–11:05 **Zuowei Shen** (National University of Singapore)
Image Restoration: Wavelet Frame Approach, Total Variation and Beyond

11:15–11:30 *Break*

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11:30–12:20 **Michal Branicki** (Courant Institute of Mathematical Sciences)
Dynamic Stochastic Superresolution of sparsely observed turbulent systems

12:30–2:30 *Lunch (on your own)*

2:00 *Session Chair: Stan Osher*

2:30–3:20 **Guillermo Sapiro** (Duke University)
Learning to optimize.

3:30–4:00 *Break*

4:00–4:50 **Jarvis Haupt** (University of Minnesota, Twin Cities)
Adaptive Compressive Sensing Using Sparse Hierarchical Learned Dictionaries

Thursday January 31, 2013

8:00–9:00 *Continental Breakfast*

9:00 *Session Chair: Laura Balzano*

9:00–9:50 **Sofia Olhede** (University College London)
Inference for Nonstationary Processes

10:00–10:15 *Break*

10:15–11:05 **John Harlim** (North Carolina State University)
Filtering irregularly spaced, sparse observations with hierarchical Bayesian reduced stochastic filters

11:15–11:30 *Break*

11:30–12:20 **Jack Xin** (University of California, Irvine (UCI))
Adaptation of Reference Library and Structured Sparse Representations for Spectroscopic Imaging

12:30–2:30 *Lunch (on your own)*

2:00 *Session Chair: Jack Xin*

2:30–3:20 **Jerome Gilles** (University of California, Los Angeles (UCLA))
Empirical Wavelet Transform (EWT)

3:30–4:00 *Break*

4:00–4:50 **Dimitris Giannakis** (New York University)
Capturing intermittent and low-frequency variability in high-dimensional data through nonlinear Laplacian spectral analysis

Friday February 1, 2013

8:00–9:00 *Continental Breakfast*

9:00 *Session Chair: Zuowei Shen*

9:00–9:50 **Laura Balzano** (University of Michigan)
Convergence of a randomized sampling method for identifying a subspace of R^n.

10:00–10:15 *Break*

10:15–11:05 **Xianyao Chen** (First Institute of Oceanography)
Detecting Signal from Data with Noise

11:15–11:30 *Break*

11:30–12:20 **Haomin Zhou** (Georgia Institute of Technology)
An Adaptive Iterative Filtering Method for Signal Decompositions and Instantaneous Frequency analysis.