

Rice University
2008 NSF / CBMS Conference on Imaging in Random Media
May 12 - 16, 2008

Schedule

| Monday, May 12, 2008 | | |
|-----------------------------|---|---|
| Time | Description | Location |
| 8:00 - 9:00 AM | Registration and Check-In | Martel Hall, Duncan Hall (Lobby) |
| 8:30 - 9:00 AM | Morning Coffee & Refreshments | Martel Hall, Duncan Hall (Lobby) |
| 9:00 - 9:15 AM | Welcome & Opening Remarks | Herzstein Hall Amphitheater |
| 9:15 - 10:15 AM | Lecture I - George Papanicolaou | Herzstein Hall AMP |
| 10:15 - 11:00 AM | Coffee Break & Informal Breakout Sessions | Martel Hall, Duncan Hall (Lobby) Duncan Hall classrooms/conference rooms (First Floor) |
| 11:00 AM - 12:00 PM | Lecture II - George Papanicolaou | Herzstein Hall AMP |
| 12:00 - 2:00 PM | Lunch | 3092 Duncan Hall (Third Floor) |
| 2:00 - 3:00 PM | Formal Discussion Session - Chrysoula Tsogka | Herzstein Hall AMP |

| Tuesday, May 13, 2008 | | |
|------------------------------|---|---|
| Time | Description | Location |
| 8:30 - 9:00 AM | Morning Coffee & Refreshments | Martel Hall, Duncan Hall (Lobby) |
| 9:00 - 10:00 AM | Lecture III - George Papanicolaou | Herzstein Hall AMP |
| 10:00 - 11:00 AM | Coffee Break & Informal Breakout Sessions | Martel Hall, Duncan Hall (Lobby) Duncan Hall classrooms/conference rooms (First Floor) |
| 11:00 AM - 12:00 PM | Lecture IV - George Papanicolaou | Herzstein Hall AMP |
| 12:00 - 2:00 PM | Lunch | 3092 Duncan Hall (Third Floor) |
| 2:00 - 3:00 PM | Formal Discussion Session - Chrysoula Tsogka | Herzstein Hall AMP |
| 3:00 - 5:30 PM | Free time | |
| 5:30 - 6:00 PM | Conference Photo | Outside Duncan Hall (Weather Permitting) |
| 6:00 - 8:00 PM | Banquet Dinner | 3092 Duncan Hall (Third Floor) |

| Wednesday, May 14, 2008 | | |
|--------------------------------|---|---|
| Time | Description | Location |
| 8:30 - 9:00 AM | Morning Coffee & Refreshments | Martel Hall, Duncan Hall (Lobby) |
| 9:00 - 10:00 AM | Lecture V - George Papanicolaou | Herzstein Hall AMP |
| 10:00 - 11:00 AM | Coffee Break & Informal Breakout Sessions | Martel Hall, Duncan Hall (Lobby) Duncan Hall classrooms/conference rooms (First Floor) |
| 11:00 AM - 12:00 PM | Lecture VI - George Papanicolaou | Herzstein Hall AMP |
| 12:00 - 2:00 PM | Lunch | 3092 Duncan Hall (Third Floor) |
| 2:00 - 3:00 PM | Formal Discussion Session - Liliana Borcea | Herzstein Hall AMP |

| Thursday, May 15, 2008 | | |
|-------------------------------|---|---|
| Time | Description | Location |
| 8:30 - 9:00 AM | Morning Coffee & Refreshments | Martel Hall, Duncan Hall (Lobby) |
| 9:00 - 10:00 AM | Lecture VII - George Papanicolaou | Herzstein Hall AMP |
| 10:00 - 11:00 AM | Coffee Break & Informal Breakout Sessions | Martel Hall, Duncan Hall (Lobby) Duncan Hall classrooms/conference rooms (First Floor) |
| 11:00 AM - 12:00 PM | Lecture VIII - George Papanicolaou | Herzstein Hall AMP |
| 12:00 - 2:00 PM | Lunch | 3092 Duncan Hall (Third Floor) |
| 2:00 - 3:00 PM | Formal Discussion Session - Josselin Garnier | Herzstein Hall AMP |

| Friday, May 16, 2008 | | |
|-----------------------------|--|---|
| Time | Description | Location |
| 8:30 - 9:00 AM | Morning Coffee & Refreshments | Martel Hall, Duncan Hall (Lobby) |
| 9:00 - 10:00 AM | Lecture IX - George Papanicolaou | Herzstein Hall AMP |
| 10:00 - 11:00 AM | Coffee Break & Informal Breakout Sessions | Martel Hall, Duncan Hall (Lobby) Duncan Hall classrooms/conference rooms (First Floor) |
| 11:00 AM - 12:00 PM | Lecture X - George Papanicolaou | Herzstein Hall AMP |
| 12:00 - 1:00 PM | Lunch | 3092 Duncan Hall (Third Floor) |
| 1:00 PM | End of Conference | |

Lectures on Imaging in Random Media

George Papanicolaou

Monday, May 12, 2008

- **Lecture I** –Introduction and overview
- **Lecture II** - Least squares and migration imaging. Basic resolution theory
- **Afternoon Formal Discussion Session - Chrysoula Tsogka:** An overview of computational results with migration imaging and introduction to computational issues

Tuesday, May 13, 2008

- **Lecture III** - Resolution theory, use of the Kirchhoff-Helmholtz identities
- **Lecture IV** - Noise sources and correlations. Open media and cavities. Velocity estimation and imaging with distributed sensors
- **Afternoon Formal Discussion Session - Chrysoula Tsogka:** Computational issues in array imaging

Wednesday, May 14, 2008

- **Lecture V** - Use of the SVD in detection and imaging
- **Lecture VI** - Edge illumination, the Fraunhofer regime and inverse filters
- **Afternoon Formal Discussion Session - Liliana Borcea:** Imaging with layer annihilation

Thursday, May 15, 2008

- **Lecture VII** - Waves in random media: layered media, the paraxial approximation, radiative transport
- **Lecture VIII** - Time reversal in random media, superresolution, statistical stability
- **Afternoon Formal Discussion Session - Josselin Garnier:** Passive sensor imaging with cross correlations

Friday, May 16, 2008

- **Lecture IX** - Coherent interferometry for imaging in random media.
- **Lecture X** - Discussion of research problems: Time reversal, imaging, random media, simulations, communications, optimization and adaptivity