



Materials by Design: Using Active and Meta-Materials to Explore New Physics and Create Customized, Tunable Matter

August 12 - 13, 2017

Chairs

Sambeeta Das and Michelle M. Driscoll

Colby-Sawyer College

541 Main Street

New London, NH, US

Conference Description

The Gordon Research Seminar on Soft Condensed Matter Physics is a unique forum for graduate students, post-docs, and other early career scientists with comparable levels of experience and education to present and exchange new data and ideas and network with other early career researchers.

The focus of this meeting is encourage scientific exchange within the highly interdisciplinary soft matter community. The theme of the meeting is "materials by design"; emphasis will be placed on using soft materials to achieve new functions, or to explore new physics, either via activity or structural design (meta-materials). Additionally, the meeting will offer a career-development session on effective scientific communication for soft matter scientists.

Related Meeting



This GRS will be held in conjunction with the "Soft Condensed Matter Physics" Gordon Research Conference (GRC). Those interested in attending both meetings must submit an application for the GRC in addition to an application for the GRS. Refer to the [associated GRC program page](#) for more information.

Conference Program

Saturday

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| 2:00 pm - 5:00 pm | Arrival and Check-in |
| 3:30 pm - 3:45 pm | Introductory Comments by GRC Site Staff / Welcome from the GRS Chair |
| 3:45 pm - 4:30 pm | Keynote Session: Active Fluids Discussion Leader: Sambeeta Das (University of Pennsylvania, USA) |
| 3:45 pm - 4:20 pm | Igor Aronson (Pennsylvania State University, USA) "Defect Dynamics in Living Liquid Crystals" |
| 4:20 pm - 4:30 pm | Discussion |
| 4:30 pm - 6:00 pm | Poster Session |
| 6:00 pm - 7:00 pm | Dinner |
| 7:30 pm - 9:30 pm | Active and Driven Materials Discussion Leader: Lauren Zarzar (Pennsylvania State University, USA) |
| 7:30 pm - 7:45 pm | Michal Bogdan (University of Cambridge, United Kingdom) "Continuum Model of Multicellular Fingering in Cancer Metastasis" |
| 7:45 pm - 7:50 pm | Discussion |
| 7:50 pm - 8:05 pm | Linnea Metcalf (Brandeis University, USA) "Dynamics of 2D Active Nematics" |
| 8:05 pm - 8:10 pm | Discussion |
| 8:10 pm - 8:25 pm | Isaac Bruss (University of Michigan, USA) "Curvature-Induced Microswarming" |
| 8:25 pm - 8:30 pm | Discussion |
| 8:30 pm - 8:45 pm | Naomi Oppenheimer (The Simons Foundation, USA) "Motion of a Hot Particle in Viscous Fluids" |
| 8:45 pm - 8:50 pm | Discussion |

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| 8:50 pm - 9:05 pm | Pranay Mandal (Indian Institute of Science, India) "Experimental Realization of All-Magnetic Active Matter System" |
| 9:05 pm - 9:10 pm | Discussion |
| 9:10 pm - 9:25 pm | Vishal Soni (James Franck Institute, University of Chicago, USA) "Large-Scale Dynamics of Colloidal Gyrofluids" |
| 9:25 pm - 9:30 pm | Discussion |
| Sunday | |
| 7:30 am - 8:30 am | Breakfast |
| 9:00 am - 11:00 am | Designing Materials and Exploring Material Failure Discussion Leader: Nathan Keim (California Polytechnic State University, San Luis Obispo, USA) |
| 9:00 am - 9:15 am | Martin Falk (Massachusetts Institute of Technology, USA) "Collagen-Inspired Self-Assembly of Twisted Filaments" |
| 9:15 am - 9:20 am | Discussion |
| 9:20 am - 9:35 am | Samaneh Rezvani Boroujeni (University of Göttingen, Germany) "Force Fluctuations of Suspended Cells - Effects of Osmotic Pressure and Motor Inhibition" |
| 9:35 am - 9:40 am | Discussion |
| 9:40 am - 9:55 am | Michael Juniper (The Francis Crick Institute, United Kingdom) "Reconstituting Biological Self-Organisation in Confinement" |
| 9:55 am - 10:00 am | Discussion |
| 10:00 am - 10:15 am | Itamar Kolvin (The Hebrew University of Jerusalem, Israel) "Topological Defects Govern Crack Front Motion and Facet Formation on Broken Surfaces" |
| 10:15 am - 10:20 am | Discussion |
| 10:20 am - 10:35 am | Matthias Merkel (Syracuse University, USA) "A Rigidity Transition and Glassy Dynamics in a Model for Confluent 3D Tissues" |

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| 10:35 am - 10:40 am | Discussion |
| 10:40 am - 10:55 am | Nidhi Pashine (University of Chicago, USA) "Auxetic Materials from Disordered Systems" |
| 10:55 am - 11:00 am | Discussion |
| 11:00 am - 12:30 pm | Poster Session <i>Coffee will be served in the poster area from 11:00 am - 11:30 am</i> |
| 12:30 pm - 1:30 pm | Lunch |
| 1:30 pm - 2:30 pm | Mentorship Component: Communicating Science Discussion Leader: Michelle Driscoll (New York University, USA) |
| 1:30 pm - 1:50 pm | Dario Corradini (Physical Review X, APS Physics, USA) "The Golden Rule of Scientific Writing: Talk to Your Audience" |
| 1:50 pm - 2:00 pm | Discussion |
| 2:00 pm - 2:30 pm | Panel Discussion <i>How to Give a Good Science Talk</i> <ul style="list-style-type: none"> • Michael Brenner (Harvard University, USA) • Zvonimir Dogic (University of California, Santa Barbara, USA) |
| 2:30 pm - 3:00 pm | Evaluation Period <i>Fill in GRS Evaluation Forms</i> |
| 3:00 pm | Seminar Concludes |

Contributors

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LETTERS

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ANDOR
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