Conference Program
Nonconvexity, Nonlocality and Incompatibility: From Materials to Biology
Conference in honor of Lev Truskinovsky's 60th birthday

All talks are in the Frick Fine Arts Building, room 125. Coffee breaks, reception and poster session are held in the cloisters, first floor of the same building.

Friday, May 5

8:20-8:50 am  Registration
8:50-9:00 am  Opening remarks
Chair: Pierre Recho, CNRS, Grenoble
9:00-9:40 am  James R. Rice, Harvard University
Thermo-Hydro-Mechanical Processes Stabilizing Antarctic Ice Stream Margins
9:45-10:25 am  Roger Fosdick, University of Minnesota
A Generalized Continuum with Internal Corner and Surface Contact Interactions
10:30-11:00 am  Coffee break
Chair: Giovanni Zanzotto, University of Padua
11:00-11:40 am  Marcelo Epstein, University of Calgary
Incompatibility in Multi-walled Nanotube Composites
11:45-12:25 pm  Andrea Braides, University of Rome Tor Vergata
Sympathy for the Devil
12:30-2:00 pm  Lunch break, attendees on their own
Chair: Yuriy Grabovsky, Temple University
2:00-2:40 pm  Robert Kohn, New York University
Zig-zag Microstructures Mixing Two Variants of Martensite
2:45-3:25 pm  Andrej Cherkaev, University of Utah
Compatibility in Frames and Lattices
3:30-4:00 pm  Coffee break
Chair: Anna Vainchtein, University of Pittsburgh
4:00-4:20 pm  Malena Espanol, The University of Akron
Registry Effects in Carbon Nanostructures
4:25-4:45 pm  Marco Morandotti, Technical University of Munich
Boundary Behavior and Confinement of Dislocations Inside a Crystal
4:50-5:10 pm  Prashant K. Purohit, University of Pennsylvania
Statistical Mechanics and Electrostatics in DNA Phase Transitions

5:15-5:35 pm  Amit Acharya, Carnegie Mellon University
A New Class of Pattern-forming Equations in Continuum Mechanics

5:40-6:00 pm  Thibaut Putelat, University of Bristol
Stability of Frictional Travelling Waves

7:00-9:00 pm  Poster Session and Conference Reception (light refreshments)
Cloisters, Frick Fine Arts Building

Poster Presentations:

Rajat Arora, Carnegie Mellon University
Modeling Longitudinally Propagating Shear Bands

Miguel Charlotte, Université de Toulouse
Essential Role of Non-essential Multifield Approximations in Lattice Dynamics

Sabyasachi Chatterjee, Carnegie Mellon University
Computing Singularly Perturbed Differential Equations and Plasticity without Constitutive Assumptions

Elisabeth Logak, Université de Cergy-Pontoise
An Epidemic Model with Nonlocal Diffusion on Networks

Cy Maor, University of Toronto
Non-Euclidean Elasticity and Asymptotic Rigidity of Manifolds

Diego Ricciotti, University of Pittsburgh
Plates with Incompatible Prestrain of Higher Order

Shawn Ryan, Cleveland State University
Algorithm for Studying Flow-Induced Phase Transitions in Nematic Liquid crystals

Arun Kumar Singh, Visvesvaraya National Institute of Technology Nagpur
Stability Analysis and Applications of the Rate, State, Temperature and Pore Pressure Friction (RSTPF) Model for Earthquake and Landslides Phenomena

Ian Tobasco, University of Michigan
Optimal Wall-to-wall Transport by Incompressible Flows

Pawan Vedanti, Wayne State University
New Statistical Parameters for Grain Growth

Chiqun Zhang, Carnegie Mellon University
Relevance and Applications of Generalized Disclination Theory in Defect Mechanics
Saturday, May 6

8:30-9:00 am  Registration

Chair: Robert Kohn, New York University

9:00-9:40 am  Sylvia Serfaty, New York University
Mean-Field Limits for Ginzburg-Landau vortices

9:45-10:25 am  Antonio DeSimone, SISSA
Biological and Bio-inspired Locomotion at Small Scales

10:30-11:00 am  Coffee break

Chair: David Owen, Carnegie Mellon University

11:00-11:40 am  Victor L. Berdichevsky, Wayne State University
Crystal plasticity on a Small-time Scale, Slip Avalanches, Acoustic Emission and the Stress-strain Curve

11:45-12:25 pm  Irene Fonseca, Carnegie Mellon University
Epitaxially Strained Elastic Films: Quantum Dots and Dislocations

12:30-2:00 pm  Lunch break, attendees on their own

Chair: Amit Acharya, Carnegie Mellon University

2:00-2:40 pm  Marta Lewicka, University of Pittsburgh
A Model of Controlled Growth

2:45-3:25 pm  Giuseppe Puglisi, Politecnico di Bari

3:30-4:00 pm  Coffee break

Chair: Ana Carpio, Complutense University of Madrid

4:00-4:20 pm  Anna Zemlyanova, Kansas State University
Surface Elasticity in Steigmann-Ogden Form in Modeling of Fracture

4:25-4:45 pm  Joe Goddard, University of California, San Diego
Dissipation Potentials and a Gradient Regularization of a Granular Flow Model

4:50-5:10 pm  Matthieu Caruel, Université Paris-Est Créteil
Mechanical Modeling of Active and Passive Force Generation in Skeletal Muscles

5:15-5:35 pm  Giuseppe Zurlo, National University of Ireland, Galway
Printing non-Euclidean Solids
5:40-6:00 pm  **Arash Yavari**, Georgia Institute of Technology  
Nonlinear Mechanics of Surface Growth for Cylindrical and Spherical Elastic Bodies

7:00-10:00 pm  Banquet at the University Club, Conference Room A

**Sunday, May 7**

8:30-9:00 am  Registration  
Chair: **Tom Pence**, Michigan State University

9:00-9:40 am  **Basile Audoly**, CNRS and Ecole Polytechnique  
The Non-Linear Mechanics of Slender Deformable Bodies

9:45-10:25 am  **Francisco-Jose Perez-Reche**, University of Aberdeen  
Modelling Avalanches in Solids

10:30-11:00 am  Coffee break  
Chair: **Andrea Braides**, University of Rome Tor Vergata

11:00-11:40 am  **Phoebus Rosakis**, University of Crete  
Can Cells Use Phase Transitions to See Each Other in Fibrous Darkness?

11:45-12:25 pm  **Ana Carpio**, Complutense University of Madrid  
Morphomechanics of Bacterial Biofilms

12:30-2:00 pm  Lunch break, attendees on their own  
Chair: **Marta Lewicka**, University of Pittsburgh

2:00-2:40 pm  **Reuven Segev**, Ben-Gurion University of the Negev  
The Global Geometric Viewpoint of Continuum Mechanics: an Overview of Some Applications

2:45-3:25 pm  **Khanh Chau Le**, Ruhr University Bochum  
Modeling Recrystallization by Means of Non-convex Energy Minimization

3:30-3:50 pm  **Alexandre Danescu**, Lyon Institute of Nanotechnology  
Design of 3D objects Using Stress Relaxation in 2D Thin-films: the Interplay Between Geometry and Mechanics