

## Packing Problems, Classical Ground States, and Glasses

April 12, 2007, Taplin Auditorium, Fine Hall

- 8:45 – 9:00 am Opening Remarks, Curtis Callan, Director, PCTP & Salvatore Torquato, Workshop Organizer
- 9:00 – 10:30 am **Session Chair--Robert Calderbank, PACM, EE, Princeton**
- 9:00 – 9:45 am “Nonclassical Codes and Packings”,  
**Neil Sloane**, AT&T Shannon Lab, New Jersey
- 9:45 – 10:30 am “Configurational Polytopes Near the Jamming Limit”  
**Frank Stillinger**, Chemistry, Princeton
- 10:30 – 11:00 am **Coffee Break in Lobby Downstairs**
- 11:00 – 12:30 pm **Session Chair—Antonello Scardicchio, PCTP & Physics, Princeton**
- 11:00 – 11:45 am “Order and Disorder in Sphere Packings”  
**Henry Cohn**, Theory Group, Microsoft Corporation
- 11:45 – 12:30 pm “Can Disordered Sphere Packings Ever be Maximally Dense?”  
**Salvatore Torquato**, Chemistry & PCTP, Princeton
- 12:30 – 1:30 pm **Lunch, Brush Gallery, McDonnell Hall**
- 1:30 – 3:00 pm **Session Chair—Meera Parish, PCTP & Physics, Princeton**
- 1:30 – 2:15 pm “Upper Bounds: Delsarte and Beyond”,  
**Noam Elkies**, Mathematics, Harvard University
- 2:15 – 3:00 pm “Quasicrystals: Tiling and Packing Problems”  
**Paul Steinhardt**, Physics & PCTP, Princeton
- 3:00 – 3:30 pm **Coffee Break in Lobby downstairs**
- 3:30 – 5:00 pm **Session Chair—Roberto Car, Chemistry, Princeton**
- 3:30 – 4:15 pm “Packing Heterogeneity and Bumpy Landscapes in Protein Folding”  
**Ken Dill**, UC San Francisco, Pharmaceutical Chemistry and Biophysics
- 4:15 – 5:00 pm “Understanding the Symmetries of Packings in Space”  
**John Conway**, Mathematics, Princeton

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April 13, 2007, Room A-10, Jadwin Hall

- 9:00 – 10:30 am **Session Chair—David Huse, Physics, Princeton**
- 9:00 – 9:45 am “Thermal Fluctuations and Crumpling of Amorphous Shells”  
**David Nelson**, Physics, Harvard University
- 9:45 – 10:30 am “Crystal Structures and their Cohesive Energies in Metallic Glass-forming Alloy Systems”  
**Michael Widom**, Physics, Carnegie Mellon University
- 10:30– 11:00 am **Coffee Break in Lobby**
- 11:00 – 12:30 pm **Session Chair—Athanasios Z. Panagiotopoulos, Chemical Engineering & PRISM, Princeton**
- 11:00 – 11:45 am “The Jamming Transition of Sphere Packings”  
**Andrea Liu**, Physics, University of Pennsylvania
- 11:45 – 12:30 pm “Bernal Packing Revised: Insights into Disordered Sphere Packings”  
**Tomaso Aste**, Applied Mathematics, Australian National University
- 12:30 – 1:30 pm **Lunch, Brush Gallery, McDonnell Hall**
- 1:30 – 3:00 pm **Session Chair—Andrei Bernevig, PCTP & Physics, Princeton**
- 1:30 – 2:15 pm “The Order Map: Towards a Smooth Progression of Liquid Behavior, from Hard Spheres to Water”  
**Pablo Debenedetti**, Chemical Engineering, Princeton
- 2:15 – 3:00 pm “Caging, Barrier Hopping and Heterogeneous Dynamics in Glassy Fluids of Hard Objects”  
**Ken Schweizer**, Chemistry, University of Illinois at Urbana-Champaign
- 3:00 – 3:30 pm **Coffee Break in Lobby**
- 3:30 – 5:00 pm **Session Chair—Elliot Lieb, Physics & Mathematics, Princeton**
- 3:30 – 4:15 pm “Universal Extremal Lattices for Epstein’s Zeta Function”  
**Peter Sarnak**, Mathematics, Princeton
- 4:15 – 5:00 pm “Experiments on the Random Packing of Ellipsoids and Tetrahedra”,  
**Paul Chaikin**, Physics, New York University