

LASSP SOLID STATE and THEORY SEMINARS

700 Clark Hall, 4:30 p.m Tuesdays or Thursdays

Fall 1999

Aug. 31

Randall Kamien, University of Pennsylvania
Scherk's First Surface, Twist-Grain Boundaries and All That

Sep. 14

Paul Tedrow, MIT
Spin Polarized Tunneling in Superconductors and Ferromagnets

Sep. 20–24

Autumn School Lectures, Quantum Computation: Software
N. David Mermin, Cornell University

Sep. 27–Oct. 1

Autumn School Lectures, Quantum Computation: Hardware
David DiVincenzo, IBM

Sep. 30

Autumn School Lecture, Quantum Information Theory
Barbara Terhal, IBM

Oct. 5

Marlan Scully, Texas A&M University and MPI für Quantenoptik
Bose Einstein Condensation and the Laser Phase Transition Analogy

Oct. 12

Fall Break

Oct. 19

Nicola Mazari, Naval Research Laboratory
The Exotic Dynamics of a Simple Metal: Probing Aluminum Surfaces with Computer Experiments

Oct. 26

Venky Narayanamurti, Harvard University
Ballistic Electron Emission Microscopy (BEEM) and Spectroscopy of Semiconductor Hetero-structural Quantum Wells and Quantum Dots

Nov. 2

Thomas Natterman, University of Cologne
The Roughening Transition in Regular and Random Media

Nov. 9

William Gallagher, IBM

Magnetic Tunnel Junctions — Potentially New, Universal Random Access Memory Technology: From PRL to Circuit Demonstration in 3 Years and Products in ???

Nov. 16

Jason Ho, The Ohio State University and Cornell University

What Does BEC Do for Condensed Matter Physics?

Nov. 23

Priya Vashishta, Louisiana State University

Multimillion Atom Simulation of Materials on Parallel Computers — Past, Present and Future

Spring 2000**Jan. 25**

Brian Anderson, JILA, University of Colorado

Vortices in a Dilute-Gas Bose-Einstein Condensate

Feb. 1

Paul McEuen, University of California, Berkeley

Carbon Nanotubes – A (Nearly) Ideal 1D Conductor

Feb. 8

Dan Stamper-Kurn, California Institute of Technology

Shedding Light on Gaseous Bose-Einstein Condensates

Feb. 15

Ian R. Fisher, Ames Lab and Iowa State University

Symmetry, Energy Scales and Length Scales: Ways to Look at the Physics of New Materials

Feb. 22

Andrea Cavalleri, University of California, San Diego

Measurements of Ultrafast Lattice Dynamics in Solids

Feb. 29

Hari Manoharan, IBM Almaden Research Center

Quantum Mirages

Mar. 2

Robert Leheny, Massachusetts Institute of Technology

The Two-Dimensional Quantum Heisenberg Antiferromagnet

Mar. 7

Zhen Yao, Technische Universiteit Delft

Carbon Nanotube Wires and Junctions

Mar. 14

Barry Stipe, IBM Almaden Research Center
Tuning in to Individual Atoms and Molecules with Scanning Probes

Mar. 21

Spring Break

Apr. 6

David Goldhaber-Gordon, Harvard University
Electron Spin in Quantum Dots

Apr. 11

Alex Travesset, Syracuse University
The Statistical Mechanics of Topological Defects on Curved Surfaces

Apr. 18

Michael Berry, University of Bristol
Quantum Mechanics, Chaos, and the Primes

Fall 2000

Sep. 5

Nigel Goldenfeld, University of Illinois
Turbulence!

Sep. 12

Arshard Kudrolli, Clarke University
Clustering and Segregation in Granular Flows

Sep. 19

Roberto Merlin, University of Michigan
Coherent and Squeezed Phonons: Controlling Lattice Motion with Ultrafast Light Pulses

Sep. 26

Robert Buhrman, A&EP, Cornell University
Spin Transport Effects in Magnetic Nanostructures

Oct. 3

Christina Marchetti, Syracuse University
Depinning Transition and Collective Transport in Random Media: From Superconductors to Fluid Flow

Oct. 10

Fall Break

Oct. 17

Mark Nelkin, New York University
Pressure Fluctuations in Turbulent Flows

Oct. 24

J. C. Davis, University of California, Berkeley
Exploring High T_c Superconductivity: One Atom at a Time

Oct. 26

Michael Chertkov, Los Alamos National Laboratory
Pulse Confinement in Optical Fibers with Random Dispersion

Nov. 7

Leonid Glazman, University of Minnesota
Kondo Effects in Quantum Dots

Nov. 14

Barbara Frisken, Simon Fraser University
Vesicle Formation by Extrusion through Micropores

Nov. 28

Daniel Lathrop, University of Maryland
Jets, Cones, and Singularities in Surface Waves

Nov. 30

Jürgen Hafner, University of Vienna
Non-collinear Magnetism in Two and Three Dimensions

Spring 2001**Jan. 25**

Steven Girvin, University of California, Santa Barbara
Physics of "Which Layer?" Uncertainty

Jan. 30

Michael Fogler, MIT
Liquid Crystals and Quantum Hall Effect

Feb. 6

Oleg Tchernyshyov, Institute for Advanced Study
Exorcising the π Particle

Feb. 8

Roy Bar-Ziv, Rockefeller University
Collective Binding of a RecA Protein as a DNA Decoder

Feb. 13

Peter Abbamonte, University of Groningen
Resonant Inelastic X-ray Scattering from Insulating Cuprates

Feb. 15

Alexei Tkachenko, Lucent Technologies
DNA and its Interactions

Feb. 20

Anthony Dinsmore, Harvard University
Colloidal Suspensions: Model Systems for Complex Materials

Feb. 22

Horacio Castillo, Boston University
Dynamical Transition in a Low Dimensional Glassy System

Feb. 27

Jonathan Friedman, SUNY Stony Brook
Quantum Taxonomy: Making a (Schrödinger's) Cat out of a SQUID

Mar. 6

Joel Moore, Bell Labs–Lucent Technologies
Some Unexpected Correlation Effects In Quantum Dots and (Mostly Chiral) Luttinger Liquids

Mar. 20**Spring Break****Apr. 10**

Arthur La Porta, Cornell University
A Mosquito's View of Turbulence

Apr. 17

Hongkun Park, Harvard University
Transport and Scanned Probe Investigations of Single-Walled Carbon Nanotubes

Apr. 24

James Sauls, Northwestern University
The Sound of Broken Symmetry: Acoustic Faraday Rotation in Superfluid ^3He

Fall 2001**Sep. 11**

Vincent Crespi, Pennsylvania State University
Theory of Nanostructures: Boron-Based Nanotubes, Nanocones, Perfect Bearings, the Strongest Nanotubes, and Magnetic Hurricanes in Ordered Porous Magnets

Sep. 18

James Sethna, Cornell University
Plasticity from a Physicist's Perspective

Sep. 25

Jeevak Parpia, Cornell University
Superfluid ^3He and ^3He - ^4He Mixtures in Aerogel

Oct. 2

Igor Aleiner, SUNY Stony Brook
Metal-Insulator Transition in Two Dimensions: New Twist of the Old Story?

Oct. 9**Fall Break****Oct. 11**

Reinhard Lipowsky, Max Planck Institute
Movements of Molecular Motors

Oct. 16

J. C. Séamus Davis, University of California, Berkeley
Quantum Nanofluidics: Physics and Applications

Oct. 23

Gergely Zarand, Harvard University
Magnetic Semiconductors: Frustrated Magnets

Oct. 30

Maxim Zalalutdinov, Cornell University
High-frequency Optical MEMS

Nov. 6

Mark Dykman, Michigan State University
Quantum Computing Using Electrons in Helium

Nov. 13

Michael Levene, A&EP, Cornell University
Zero-mode Waveguides for Single Molecule Analysis and DNA Sequencing

Nov. 20

Alexander V. Balatsky, Los Alamos National Laboratory
Impurity States and Marginal Stability in Unconventional Superconductors

Nov. 27

Daniel Lathrop, University of Maryland
Jets, Cones and Singularities in Surface Waves

Dec. 4

Wouter Rappel, University of California, San Diego
Cellular Signaling Networks: What Can Theoretical Models Tell Us?

Spring 2002**Jan. 22**

Yuval Oreg, Weizmann Institute
Fermions and Bosons in Superconducting Amorphous Wires

Jan. 29

Matthew Hastings, Los Alamos National Laboratory
Dielectric Breakdown Models, Fractal Growth, and Conformal Maps

Feb. 5

Roland Kawakami, University of California
Ferromagnetic Imprinting of Nuclear Spins in Semiconductors

Feb. 12

Lev Kaplan, University of Washington
Quantum Chaos: Wave Function Ergodicity, Localization, and Transport in Generic Systems

Feb. 19

Michael Woodside, Cornell University
Imaging Single-Electron Motion in Carbon Nanotube Quantum Dots

Feb. 26

Konrad Lehnert, Yale University
Coherence Time and Excited-state Lifetime of a Cooper-pair Box

Mar. 5

Young-June Kim, Brookhaven National Laboratory
X-ray Scattering Studies of Electron Correlations in Transition Metal Oxides

Mar. 12

Orly Alter, Stanford University
Quantum Measurement of a Single System

Mar. 19

Spring Break

Mar. 26

Nikolay Dokholyan, Harvard University
Identifying Importance of Amino Acids for Protein Folding

Apr. 2

Ilya Gruzberg, MIT
Tail States in Superconductors With Magnetic Impurities

Apr. 9

Anton Darhuber, Princeton University
Microscale Fluid Dynamics on Chemically Patterned Surfaces: From Wet Printing to Microfluidic Actuation

Apr. 16

Alexander Lobkovsky, Northeastern University
Extreme Physics of Crack Tips

Apr. 23

Richard Wiener, Pacific University
Controlling Chaotic Pattern Dynamics

Apr. 30

Aashish Clerk, Yale University
Resonant Cooper-Pair Tunneling: Quantum Noise and Quantum Measurement

Fall 2002**Sep. 10**

Bruno Eckhardt, University of Marburg
Turbulence Transition in Shear Flows

Sep. 17

Karsten Flensberg, Niels Bohr Institute
Coulomb Drag of Coupled Electron Systems

Sep. 24

Lance R. Collins, Cornell University
Clustering of Particles in Turbulence: Implications for Early Cloud Development

Oct. 1

David DeMille, Yale University
Quantum Computation with Trapped Polar Molecules

Oct. 8

Shin Inouye, University of Colorado
Interactions in Dilute Fermi Gases — Toward Fermionic Superfluidity

Oct. 10

Christopher Mudry, Paul Scherrer Institut
Freezing Transition in a Problem of Anderson Localization

Oct. 15**Fall Break****Oct. 22**

Kyle McElroy, University of California, Berkeley
Fourier Transform Scanning Tunneling Spectroscopy Accessing the Cuprate Quasiparticle States from Real-space

Oct. 24

Richard Klemm, Max-Planck-Institut für Physik Komplexer Systeme
 $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+d}$ Bicrystal c-axis Twist Josephson Junctions: A New Phase Sensitive Test of Order Parameter Symmetry

Oct. 29

Erich Mueller, The Ohio State University
Rotating Cold Gases: Vortices, Spin Textures, and Strong Correlation

Nov. 5

Guido Burkhard, University of Basel
Optimized Quantum Computation Using the Exchange Interaction

Nov. 14

Ashvin Vishwanath, Massachusetts Institute of Technology
Dirac Quasiparticles in the Superconductor Vortex State

Nov. 19

David Lubensky, Lucent Technologies
Unzipping DNA: From Pulling to Pores and Back Again

Nov. 26

Chinlin Guo, Harvard University
The Possible Mechanisms in Yeast Chemotropism: Insights to Eukaryote Gradient Sensing

Spring 2003**Jan. 28**

Ashvin Vishwanath, MIT
Luttinger Liquid Physics in Dimensions Higher than One

Feb. 3

Erich Mueller, The Ohio State University
Quantum Degenerate Fermi Vapors

Feb. 11

Itamar Borukhov, University of California, Los Angeles
Linker-Assisted Biopolymer Aggregation

Feb. 13

Berenike Maier, Columbia University
Single Pilus Motor Forces Exceed 100pN

Feb. 18

Sharad Ramanathan, Harvard University
Noise in Signal Transduction Systems

Feb. 25

Piet Brouwer, Cornell University
Wavefunctions in the Crossover Between Random Matrix Ensembles

Feb. 27

Steven G. Lipson, Technion
Pattern Formation in Drying Water Films

Mar. 11

Zvonimir Dogic, University of Pennsylvania
Imaging Kinetic Pathways of Phase Transitions in Colloidal Liquid Crystals

Mar. 18**Spring Break****Mar. 25**

Bertrand I. Halperin, Harvard University (Bethe Lecture)
Quantum Hall Bilayers at Total Filling $\nu=1$

Mar. 27

Bertrand I. Halperin, Harvard University
Recent Developments in The Quantum Hall Effects

Apr. 1

Peter Abbamonte, Cornell University
Probing the Structure of the Mobile Carrier Liquid in Copper-Oxide Superconductors

Apr. 8

Stan Leibler, Rockefeller University
Space, Time and Genetic Networks

Apr. 15

Mohit Randeria, Tata Institute of Fundamental Research and University of Illinois
High T_c Superconductivity: New Insights from Variational Functions

Apr. 22

Bella Lake, Oxford University
Neutron Scattering Studies of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$

Fall 2003**Sep. 2**

Pietro Gambardella, Institut de Physique des Nanostructures
Surface Dilute Magnetic Systems, Nanoparticles, and Nanowires: XMCD and STM Studies

Sep 11

Christopher Mudry, Paul Scherrer Institut
Disorder and d-Wave Superconductivity

Sep. 16

Tetsuo Hanaguri, University of Tokyo
STM/STS Studies on Strongly Correlated Electron Systems: Search for Electronic Phase Separation Near the Metal-to-Mott-Insulator Transitions

Sep. 23

Roman Movshovich, Los Alamos National Laboratory
Pauli Limiting, First Order Superconducting Phase Transition, and Possible Fulde-Ferrell-Larkin-Ovchinnikov Inhomogeneous Superconducting State in CeCoIn₅

Sep. 30

Andre Leclair, LEPP, Cornell University
Russian Doll Renormalization Group Flows

Oct. 7

Vincent Liu, MIT
Breached Pairing Superfluidity: A Possible New State of Matter in Cold Fermi Atoms

Oct. 14

Moses Chan, Pennsylvania State University
Observation of a Supersolid State of Matter

Oct. 21

N. Phuan Ong, Princeton University
Vortex Nernst Effect and Pairing Strength in Phase Diagram of the Cuprates

Oct. 28

Nikolay V. Prokof'ev, University of Massachusetts
Two-Component Bosons in an Optical Lattice: Groundstates and Phase Transitions

Nov. 4

Smitha Vishveshwara, University of Illinois
Unearthing Fractional Statistics via a Hanbury Brown-Twiss Set-Up

Nov. 11

Adam Durst, Yale University
Radiation-Induced Magnetoresistance Oscillations in a 2D Electron Gas

Nov. 18

Charles Kane, University of Pennsylvania
Charge and Statistics of Dilute Laughlin Quasiparticles

Nov. 25

Raymond W. Simmonds, National Institutes of Science and Technology
An Improved Josephson Junction Based Quantum Bit

Spring 2004**Feb. 3**

Kenneth O'Hara, National Institutes of Standards and Technology
A New Playground for Many-Body Physics: Strongly-Correlated Atomic Gases

Feb. 10

Jack Harris, Harvard University
Cold Atoms Without Laser Cooling: the Frontier of Buffer Gas Trapping

Feb. 12

Heather Lewandowski, NIST/JILA, University of Colorado
Cooling and Trapping OH Molecules

Feb. 17

Nadya Mason, Harvard University
Local Gate Control of Carbon Nanotube Quantum Dots

Feb. 19

Itai Cohen, Harvard University
The Shear Excitement of Confined Colloidal Suspensions

Feb. 24

Cheng Chin, University of Innsbruck
Formation and Bose-Einstein Condensation of Ultracold Molecules

Feb. 26

Jan Liphardt, Lawrence Berkeley Laboratory
Five Years of Tension: Mechanical Unfolding of Single Ribozymes using Optical Traps

Mar. 9

Hakan Tureci, Yale University
Modes of Wave-Chaotic Dielectric Resonators

Mar. 23**Spring Break****Apr. 6**

Garnet Chan, University of Cambridge
A Renormalization Group Approach to Electronic Structure Theory

Apr. 13

Gerard Wong, University of Illinois
Complex Behavior of Simple Ions Near Biological Polyelectrolytes

Apr. 20

Patrick Mang, Stanford University
Scattering Studies of the Electron-Doped High-Temperature Superconductor $\text{Nd}_{2-x}\text{Ce}_x\text{CuO}_4$

Apr. 29

Jay Banavar, Pennsylvania State University
Geometry and Physics of Proteins

May 4

John Tranquada, Brookhaven National Laboratory
Quantum Magnetic Excitations from Stripes in Cuprate Superconductors

May 6

Marcel Franz, University of British Columbia
Nodal Protectorate in Underdoped Cuprates

Fall 2004**Aug. 31**

Andreas Savin, CNRS, Paris
Adiabatic Connections in Density Functional Theory

Sep. 7

Keith Schwab, University of Maryland
Experiments at the Quantum Limit of Mechanical Devices....and a new really easy readout technique....

Sep. 14

Nicholas Bigelow, University of Rochester
Rotating a Gaseous Bose-Einstein Condensate: From Vortices to Quantum Hall

Sep. 28

Shmuel Fishman, Technion, Haifa, Israel
Quantum Chaos and Atom Optics: From Experiments to Number Theory

Oct. 5

David Nelson, Harvard University
Non-Hermitian Luttinger Liquids and Vortex Physics

Oct. 12**Fall Break****Oct. 19**

Randall Kamien, University of Pennsylvania
What's Kelvin's Problem?

Oct. 26

Allan Griffin, University of Toronto
Recent Work on Quasiparticle Energy Spectrum in a Superfluid Gas of Fermi Atoms

Nov. 2

A. J. Sievers, LASSP, Cornell University
Intrinsic Energy Localization in Macroscopic and Atomic Lattices

Nov. 9

Moses Chan, Pennsylvania State University
Can a Solid be Superfluid?

Nov. 16

Rena Zieve, University of California, Davis
Single Vortex Pinning in a Superfluid

Nov. 23

Michal Lipson, Electrical & Computer Engineering, Cornell University
On-chip Nanophotonic Devices

Nov. 30

Bertrand Reulet, Yale University
Finite Frequency Measurements of the Non-Gaussian Current Fluctuations in Mesoscopic Systems

Dec. 7

Herbert Levine, University of California, San Diego
Fluctuation-Dominated Front Propagation

Spring 2005**Feb. 10**

Amit Meller, Rowland Institute at Harvard University
Translocation and Unzipping Kinetics of DNA Molecules Using a Nanopore

Feb. 15

Eric Bauer, Los Alamos National Laboratory
Superconductivity in a Very Strange Place: The Story of PuCoGa_5

Feb. 22

Chinlin Guo, Harvard University
Long-range Cooperativity in Yeast Mating Polarization

Feb. 24

Keith Schwab, University of Maryland
Probing the Quantum Limit of Nanomechanical Devices

Mar. 3

Karen Daniels, Duke University
Freezing and Melting in Granular Materials

Mar. 8

Tobias Kippenberg, California Institute of Technology
Ultra-High-Q Optical Microcavities

Mar. 10

Zoran Hadzibabic, Laboratoire Kastler Brossel, Ecole Normale Supérieure
Layered 2D Bose-Einstein Condensates in an Optical Lattice

Mar. 15

Kyle Shen, Stanford University

Evolution of $\text{Ca}_{2-x}\text{Na}_x\text{CuO}_2\text{Cl}_2$ from Mott Insulator to High- T_c Superconductor: “The Story from Einstein’s Electrons”

Mar. 22**Spring Break****Apr. 5**

Matthias Troyer, Swiss Federal Institute of Technology, Zurich

Quantum Criticality and Exotic Phases in Quantum Magnets and Lattice Bosons

Mar. 12

Denis Ullmo, Duke University

Mesoscopic Kondo Problem

Apr. 19

Ilya Nemenman, Columbia University

How Much Does a Fly Know About Its World?

May 3

Alessandra Lanzara, University of California, Berkeley

Electron-Lattice Interaction and Competing Orders in Cuprates Superconductors

Fall 2005**Aug. 30**

Georg Hoffstaetter, LEPP, Cornell University

Toward an Energy Recovery Linac X-ray Source at Cornell

Sep. 6

Vladimir Privman, Clarkson University

Evaluation of Decoherence for Quantum Control and Computing

Sep. 13

Nikolay Prokof'ev, University of Massachusetts, Amherst

How Can Superfluidity Occur in a Crystalline Solid

Sep. 20

David Thouless, University of Washington

Vortex Dynamics in Superfluids

Oct. 4

Nandini Trivedi, The Ohio State University

Can Disorder Induce Metallic Behavior in a Mott Insulator?

Oct. 11
Fall Break

Oct. 18
Richard Templer, Imperial College, University of London
The New Physics and Chemistry of Drug Transport

Oct. 25
George Thurston, Rochester Institute of Technology
Liquid-Liquid Phase Separation of Aqueous Mixtures of Eye Lens Proteins

Nov. 1
Jan Luning, Stanford University
Lensless Spectromicroscopy by X-ray Fourier Transform Holograph

Nov. 8
Igor Aleiner, Columbia University
Metal-Insulator Transition in a Weakly Interacting Many-Electron System with Localized Single-Particle States

Nov. 15
No Seminar, Gold Lecture by Roger Blandford

Nov. 22
Peter Hirschfeld, University of Florida
Where Does the Nanoscale Gap Disorder in the Cuprates Come From?

Nov. 29
James R. Fienup, University of Rochester
Phase Retrieval for Astronomy and X-ray Diffraction Microscopy

Spring 2006

Jan. 19
Subhadeep Gupta, University of California, Berkeley
Bose-Einstein Condensates in Storage Rings and Optical Cavities

Jan. 31
Norman Birge, Michigan State University
Nonequilibrium Phenomena in Mesoscopic SNS Josephson Junctions

Feb. 7
Matthias Liepe, LEPP, Cornell University
A Science Makes Science: Superconducting RF for the Cornell ERL and Beyond

Feb. 14
Carlos Bustamante, Biological Statistics & Computational Biology, Cornell University
Statistical Methods for Detecting Natural Selection in the Human Genome

Feb. 21

Markus Kindermann, LASSP, Cornell University
Correlations and Entanglements in Nanostructures

Feb. 28

Ted Hodapp, APS Education and Outreach Division
Physics Teaching: The Role of Colleges and Universities in the Preparation of
Future Teachers

Mar. 7

David Weiss, Pennsylvania State University
Experiments with 1D Bose Gases

Mar. 21

Andrew Mackenzie, University of St. Andrews
Linking Surface to Bulk in Transition Metal Oxides

Mar. 28

Eric Dufresne, Yale University
Coulomb Blockade in Soft Condensed Matter

Apr. 4

No Seminar

Apr. 11

Anders Sandvik, Boston University
Antiferromagnetic to Valence Bond Solid Transitions in Two Dimensions

Apr. 18

Joshua Socolar, Duke University
Universal Dynamical Structures in Random Boolean Networks

Apr. 25

Chris Jacobsen, SUNY Stony Brook
To Live and Die in L.A. (lab apparatus): Radiation Limits for Studies in Biology and Soft Matter

May 2

Alexey Bezryadin, University of Illinois
Superconducting Nanowires

Fall 2006**Sep. 12**

Susan Coppersmith, University of Wisconsin
Computational Complexity and Complex Systems

Sep. 19

David Lee, LASSP, Cornell University
H Atoms Embedded in Solid Molecular Hydrogen: To BE c or Not to BE c

Sep. 26

Lydia Sohn, University of California, Berkeley
Spanning the Length Scales with Artificial Pores

Oct. 3

Aashish Clerk, McGill University
Surprises in Quantum Nano-Electromechanics

Oct. 10**Fall Break****Oct. 17**

Bethe Lecture

Oct. 24

Douglas Scalapino, University of California, Santa Barbara
The Hubbard Model and the High T_c Cuprates

Oct. 31

Daniel Stick, University of Michigan
Quantum Computing Using Trapped Ions

Nov. 7

Greg Boebinger, Florida State University
The Cusp at Optimum Doping in the Low-Temperature Hall Number of the High-Temperature Superconductors

Nov. 9

Wendy Mao, Los Alamos National Laboratory
Studying Low-Z Materials at High Pressure

Nov. 14

Chris Hammel, The Ohio State University
Magnetic Resonance Force Microscopy

Nov. 21

Jennifer Schwarz, Syracuse University
Classical and Quantum Models of Correlated Percolation

Nov. 28

Daniel Fisher, Harvard University
Simple Models of Glass Transitions

Dec. 5

Steve Lamoreaux, Yale University
The Oklo Natural Nuclear Reactor and the Time Stability of the Fundamental Constants of Nature

Spring 2007

Feb. 1

Aaron Leanhardt, University of Colorado
High Energy Physics with Ultracold Atoms and Molecules: Tabletop Searches for CP Violation and Extra Dimensions

Feb. 13

Chao-Lin Kuo, California Institute of Technology
CMB Beyond the Acoustic Peaks

Feb. 15

Feng Wang, University of California, Berkeley
Optical Spectroscopy of Semiconducting and Metallic Nanostructures

Feb. 20

Daniel Needleman, Harvard University
Single Molecule Dynamics in Cell Division

Feb. 27

Yael Roichman, New York University
Holographic Optical Tweezers, Reaching into the Microscopic World

Mar. 1

Nuh Gedik, California Institute of Technology
Ultrafast Structural Dynamics Observed with Atomic Scale Resolution

Mar. 13

David Schurig, Duke University
The Transformation Design Method and Metamaterials: Tools to Realize Invisibility and Other Interesting Effects

Mar. 20

Spring Break

Apr. 3

Meera Parish, Princeton University
Polarized Atomic Fermi Condensates

Apr. 10

Andrea Liu, University of Pennsylvania
Jamming

Apr. 17

Dan Stamper-Kurn, University of California, Berkeley
Dynamics of a Magnetic Superfluid

Apr. 24

Ron Lifshitz, University of Tel Aviv
Quasicrystals — Some of Nature's Most Intriguing Forms of Matter

Fall 2007

Sep. 11

Joel Brock, AEP, Cornell University
Time-Resolved X-ray Studies of Pulsed Laser Deposition

Sep. 18

Kamil Ekinci, Boston University
Nanomechanical Sensing and Metrology: Recent Progress

Sep. 25

Peter Armitage, The Johns Hopkins University — A Cooper Solid?: Electrodynamics of the 2D Superconductor-Insulator Quantum Phase Transition

Oct. 2

Karyn Le Hur, Yale University
Charge Fractionalization and Transport in Low Dimensions

Oct. 9

Fall Break

Oct. 16

Narayanan Menon, University of Massachusetts, Amherst
Wrinkling, Folding and Crumpling of Elastic Sheets

Oct. 23

Joseph Orenstein, University of California, Berkeley
The Persistent Spin Helix: Spin Propagation in a Two-Dimensional Electron Gas

Oct. 30

Trey Porto, National Institutes of Standards and Technology
Controlled Exchange Interactions Between Pairs of Neutral Atoms in an Optical Lattice

Nov. 6

Wilhelm Zwerger, Technical University of Munich
Pairing versus Superfluidity in Ultracold Fermi Gases

Nov. 13

Philip W. Adams, Louisiana State University
Avalanches, Reentrance, and Incoherent Pairing: The Extraordinary Behavior of Ordinary Superconductors in High Magnetic Fields

Nov. 20

Erkki Thuneberg, University of Oulu
Pi-states and Dissipative Currents in Superfluid ^3He Josephson Junctions

Nov. 27

Gabriel Kotliar, Rutgers University
Strongly Correlated Electron Materials: A Dynamical Mean Field Theory Perspective

Spring 2008

Feb. 5

Shinsei Ryu, University of California, Santa Barbara
3D Topological Insulators and 2D Anderson Delocalization

Feb. 7

Eun-Ah Kim, Stanford University
The Theory of the Nodal Nematic Quantum Criticality

Feb. 12

Hui Deng, California Institute of Technology
The Matter-Light Quantum Interfaces for Scalable Quantum Networks

Feb. 19

William Ryu, Princeton University
A Biophysicist Looks at the Thermal Response and Motor Behavior of *E. coli* and *C. elegans*

Feb. 21

Markus Müller, Harvard University
Nernst Effect and Magnetohydrodynamics Near Quantum Criticality in Superconductors, Graphene and Black Holes

Feb. 26

Ahmet Yildiz, University of California, San Francisco
Single Molecule Studies of Motor Protein Movement with Nanometer Precision

Mar. 4

Mukund Vengalattore, University of California, Berkeley
Equilibrium Phases of a Dipolar Magnetic Superfluid

Mar. 18

Spring Break

Mar. 25

Philipp Werner, Columbia University
Diagrammatic Monte Carlo Methods for Fermions

Apr. 1

Weining Man, Princeton University
Geometry and Symmetry in Photonics and Material Science

Apr. 8

Egor Babaev, University of Massachusetts, Amherst
Counterflow Condensates: From Projected Metallic Hydrogen to Multicomponent Bose-Einstein and Excitonic Condensates

Apr. 15

Steven Chu, Bethe Lecturer
Coherent Control of Ultra-Cold Matter

Apr. 22

Eric Akkermans, Technion
Photon Localization and Dicke Superradiance: A Crossover to Small World Networks

Apr. 29

Paul Francois, Rockefeller University
Deriving Structure from Computational Evolution