

Friday, October 23, 2015

Plenary Session

Speaker : Prof. Christopher Monroe, University of Maryland

Time : 07:00- 08:00 PM *Room*: Salon E

Title : *Quantum Computing with Atoms*

Saturday, October 24, 2015

Plenary Session

Speaker : Prof. Karen Rabe, University of Rutgers

Time : 09:00- 10:00 AM *Room*: Salon E

Title : *Age of Exploration: Materials Discovery in the Virtual World*

Coffee Break (Time: 10:00 - 10:30 AM)

Parallel Sessions (10:30 – 12:30 PM)

Time	A1: Salon A Bio and Applied Physics (M. Seehra)	A2: Salon B Atomic Control and Interactions (R. Wilson)	A3: Salon C Plasma I (U. Siddiqui)	A4: Salon E Topological Insulators (Tudor Stanescu)
10:30 - 10:42 AM	ARJUN YODH Biophotonics with Diffusing Light (Invited)	GRETCHEN CAMPBELL Superfluid Atom Circuits (Invited)	GOTTLIEB OEHRLEIN Atomic Layer Etching of SiO2 and Other Materials Using Decoupled Plasma Process Sequences (Invited)	M. ZAHID HASAN New forms of matter: Topological superconductors & Weyl fermion with topological Fermi arc metals (Invited)
10:42 - 10:54 AM				
10:54 - 11:06 AM				
11:06 - 11:18 AM	HOLLEY LYNCH High Local Curvature Reduces Migration Rate in Multi-Layer Tissue	ARVIND SRINIVASAN Atom Interferometer Gradient Magnetometer	JAMES DRAKE The mechanisms of electron acceleration during magnetic reconnection (Invited)	SOBHIT SINGH Prediction of Weyl semi- metallic phase in inversion asymmetric BiSb
11:18 - 11:30 AM	AMIR NOURHAMI Designing selfphoretic colloids and active swimmers	YI-HSEIH WANG Resonant wavepackets and shock waves in an atomtronic SQUID		SERCAN BABAKIRA Quantum Transport Properties of Bi2Se3 Thin Films

11:30 - 11:42 AM	HOWARD RICHARDS Spinodals in the Ising Model with Short-Ranged Interactions in the Hyperbolic Plane: True, Dynamic, and Thermodynamic	KATHERINE COLLINS Control of Trapped Ions on a Chip Trap for Quantum Information		DANNIS DREW Optical Properties of Dirac Materials (Invited)
11:42 - 11:54 AM	VINCENT CASTRANOVA Potential Nanoparticle Exposure during Consumer Use of a Nanoenabled Product (Invited)	KENNETH O'HARA Direct Observation of Spin- and Charge-Density Waves in a Luttinger Liquid (Invited)	HAIHONG CHE The Common-origin of Kinetic Turbulence and Electron-Halo of Velocity Distribution Function in the Solar Wind	
11:54 - 12:06 PM			DREW ELLIOTT Designed and early testing results of a microscale plasma spectrometer, for use in swarming multi-spacecraft measurements	
12:06 - 12:18 PM			WEICHAO TU TBD	
12:18 - 12:30 PM	STEVEN KNUDSEN Physics of Untied Rotating Space Elevators	BRIAN WILMER Multidimensional coherent spectroscopy of a semiconductor microcavity	-----	
				ANTHONY RICHARD Probing Quantum Anomalous Hall Edge States in Cr doped (Bi,Sb) ₂ Te ₃ Topological Insulators

Parallel Sessions (continued)

Time	A5: Wharf AB Materials Modeling (James)	A6: Salon F Nanostructures and Devices (Ned Flagg)	A7: Salon G Astrophysics I (Peterson)	A8: Salon H Physics Education I (John Stewart)
10:30 - 10:42 AM	KRISTJAN HAULE Electron correlations in solids from the Dynamical Mean Field perspective and the origin of the anomalous state of matter in iron pnictides and chalcogenides (Invited)	ANDREW KOZBIAL Understanding the intrinsic water wettability of graphite and MoS ₂	LYMAN PAGE The CMB and Neutrinos (Invited)	CHANDRALEKHA SINGH Improving student understanding of quantum mechanics (Invited)
10:42 - 10:54 AM		ANTHONY BIRDWELL Characterization of Diamond Surface Termination and Electrical Properties		

10:54 - 11:06 AM		DUSTIN SCHRECONGOST Design of Scattering Scanning Near-field Optical Microscope		
11:06 - 11:18 AM	DONALD PRIOUR Universality Classes of Weakly Anisotropic 2D Heisenberg Ferromagnets	JORGE SOFO Screening of charge impurities and defects: alternative mechanisms for the detection of gases on graphene and nanotubes (Invited)	DAVID NICE High-Precision Pulsar Timing and the Search for Nanohertz Gravitational Waves (Invited)	RELUCA TEODORESCU How to Approach and Sustain a Department Level Introductory Teaching Reform (Invited)
11:18 - 11:30 AM	KAREN RABE The Age of Exploration: Materials Discovery in the Virtual World			
11:30 - 11:42 AM	G. AVENDANO-FRANCO and ALDO ROMERO PyChemia, a software package for high-throughput materials discovery			
11:42 - 11:54 AM	XIANGLIN LIU Relativistic single-site Green's function for full potential scattering	WEITAO DEI Graphene/Oxide Heterostructure devices	SAI IM Direct Cosmic-ray Measurements with CREAM and ISS-CREAM	PAUL MILLER Learning Assistants in Introductory Physics: Replication at WVU 2011-2015
11:54 - 12:06 PM	OLIVIA PAVLIC The effects of Li concentration on the structure and mechanics in the Li-Mg binary system	NATALIE HERNANDEZ Detection and Modeling of Saturation Behavior of Eu Ion Emission in Eu-doped GaN under UV Excitation	KELLY MELONE A ground parameter for energy reconstruction of gamma rays with the HAWC Observatory	SETH DEVORE Examining the Effects of Testwiseness Using the FCI and CSEM
12:06 - 12:18 PM	DER-YOU KAO Fermi-orbitals for improved electronic structure calculations on biophysically relevant Molecules	SUSAN KEMPINGER Switching field distributions in nanoisland arrays with perpendicular magnetic anisotropy	ALAN COLEMAN Using Calibration Information to Characterize Detector Aging at the Pierre Auger Observatory	ERIN DE PREE Career Moments in Physics: A New Curriculum
12:18 - 12:30 PM	-----	-----	LOREN ANDERSON Science with a Complete Catalog of Galactic HII Regions	-----

Lunch Break (Time: 12:30 – 02:30 PM)

Plenary Session

Speaker : Prof. Alex Wolszczan, The Pennsylvania State University

Time : 02:30 - 03:30 PM *Room*: Salon E

Title : *Astronomical Future of the Humankind*

Coffee Break (Time: 03:30 PM)

Parallel Sessions (03:30 – 04:30 PM)

Time	B1: Salon A Applied Physics (M. Seehra)	----	B3: Salon C Plasma II (U. Siddiqui)	B4: Salon E Optical Characterization of Low Dimensional Systems I (Pavel)
03:30 - 03:42 PM	GIHAN PANAPITIYA On the electronic and structural properties of thiolate protected gold nano-particles Au _{25-x} Ag _x (SCH ₃) ₁₈ (For x=6,7,8)		JONATHAN MENARD Progress and plans for NSTX Upgrade and prospects for next-step spherical tori (Invited)	HRVOJE PETEK Transient excitons at metal surfaces (Invited)
03:42 - 03:54 PM	BRANDON YOST Band Gap Narrowing in Nitrogen-Doped La ₂ Ti ₂ O ₇ with Transient Absorption Spectroscopy for Hydrogen Generation			
03:54 - 04:06 PM	Z. WANG Nature of magnetism in the molecular semiconductor Cobalt Phthalocyanine (C ₁₆ H ₃₂ CoN ₈): Low temperature, high magnetic field investigations			
04:06 - 04:18 PM	FABIEN GOULAY The C(3P) + NH ₃ reaction in interstellar chemistry		MATTHEW MARSTELLER SCOAP3 and the Intellectual Contribution of the MidAtlantic Section	SUDI KSHA KHADKA Ultrafast Spectroscopy of Exciton and Exciton Dynamics in Few and Monolayer Flakes of WS ₂
04:18 - 04:30 PM	-----		-----	SCOTT CUSHING Importance of Interfacial Dephasing in Plasmonic Resonant Energy and Hot Carrier Transfer

Parallel Sessions (continued)

Time	B5: Wharf AB Material Growth and Characterization I (Micky)	B6: Salon F Spin Relaxation and Spin-Orbit Coupling (Cheng)	B7: Salon G Astrophysics II (Etienne)	B8: Salon H Physics Education II (Seth Devore)
03:30 - 03:42 PM	JINLING ZHOU La _{0.7} Sr _{0.3} MnO ₃ /PbZr _{0.2} Ti _{0.8} O ₃ interfaces examined by synchrotron x-rays	IAN APPELBAUM Spin relaxation via exchange with donor impurity bound electrons (Invited)	ROBIN STEBBINS Toward a Space-based Gravitational Wave Observatory (Invited)	GAY STEWART Factors Affecting STEM Retention Inside and Outside the Physics Major
03:42 - 03:54 PM	IVELISSE M. CABRERA Excitations of an Ising Ferromagnet in a Transverse Magnetic Field at Quantum Criticality			GERALD FELDMAN Group Quizzes with Instant Feedback and SelfCorrection
03:54 - 04:06 PM	ROBBYN TRAPPEN Depth dependent atomic valence determination by synchrotron techniques			WATHIQ ABDUL-RAZZAQ Nobel Prize Material in the Introductory Physics lab Curriculum
04:06 - 04:18 PM	J. P. CARLO Geometric Magnetic Frustration in Li ₃ Mg ₂ OsO ₆ Studied with Muon Spin Relaxation	SANJAY ADHIKARI Optical helicity control of surface current in SmB ₆	SEAN MCWILLIAMS Ongoing efforts to observe gravitational waves in the Advanced LIGO era	DAVID STARLING Tie Goes to the Runner: the Physics and Psychology of a Close Play
04:18 - 04:30 PM	-----	YU PAN Polarization dependent photocurrent in topological insulators tuned by an in plane magnetic field	MEGAN JONES, MAURA MCLAUGHLIN Dispersion Measure Variations in the NANOGrav Nine-Year Data Set	RACHEL HENDERSON Self-efficacy and belonging in introductory STEM majors

Time: 05:00 - 06:45 PM
Salon E
Poster Session
Grad Fair/ Industry Reception

Dinner Program & Plenary Session (07:00 - 09:30 PM)
Salon E

Plenary Session

Speaker : Prof. Wayne Knox, University of Rochester
Time : 07:30- 09:30 PM *Room*: Salon E
Title : **Powering the Internet in the International Year of Light**

Sunday, October 25, 2015

Parallel Sessions (09:00 – 11:00 AM)

Time	----	C2: Salon B Strong and pulsed optical fields (Kenneth O'Hara)	----	C3: Salon E Majorana Nanowires (Tudor Stanescu)
09:00 - 09:12 AM				<p>JAY DEEP SAU Experimental subtleties and applications of Majorana modes to topological quantum computation (Invited)</p>
09:12 - 09:24 AM				
09:24 - 09:36 AM				
09:36 - 09:48 AM		<p>RYAN WILSON Collective Phases of Strongly Interacting Cavity Photons (Invited)</p>		<p>JOHN STENGER Differential Conductance in Semiconductor- Superconductor Hybrid Structures</p>
09:48 - 10:00 AM				<p>SERGEY FROLOV Search for additional signatures of Majorana fermions in semiconductor nanowires coupled to superconductors (Invited)</p>
10:00 - 10:12 AM				
10:12 - 10:24 AM		<p>DAVID FOOTE Ionization modulation from interference of phaselocked ultrafast pulse pairs</p>		
10:24 - 10:36 AM		<p>JARED WAHLSTRAND Creating optical waveguides in air using ultrashort laser pulses (Invited)</p>		<p>QING-ZE WANG Topological Nonsymmorphic Crystalline Superconductors</p>

10:36 - 10:48 AM				----
10:48 - 11:00 AM				----

Parallel Sessions (continued)

Time	C4: Wharf AB Materials Growth and Characterization II (David)	C5: Salon F Optical Characterization of Low Dimensional Systems II (Yuri)	C6: Salon G Astrophysics III (McWilliams)	C7: Salon H Physics Education III (Gay Stewart)
09:00 - 09:12 AM	JOHNPIERRE PAGLIONE Novel Phenomena in Topological Materials (Invited)	PRAKASH GAJUREL The Effect of Gate Bias Stress and Light illumination on the performance of ZnO Thin- Film Transistors	ZACHARIAH ETIENNE Numerical Relativity's Contribution to Theoretical Astrophysics, and Its Path Forward (Invited)	ANDREW HECKLER Measuring physics understanding on time scales from milliseconds to months (Invited)
09:12 - 09:24 AM		DEREK BAS Terahertz spectroscopy to explore magnon dynamics in antiferromagnetic MnF2		
09:24 - 09:36 AM		KEITH VEENHUIZEN Raman spectroscopic investigation of lithium niobate nanocrystals		
09:36 - 09:48 AM	PAVEL BORISOV Multiferroic BaCoF4 Thin Films Grown Via Molecular Beam Epitaxy	JIE SHAN Control of valley pseudospin in two- dimensional MoS2 (Invited)	MARIA BABIUC A New Hyperbolic Solver for Initial Data in Numerical Relativity	KATHLEEN KOENIG Using Physics Education Research to Inform Development of Online Interactive Videos (Invited)
09:48 - 10:00 AM	TOYANATH JOSHI, PAVEL BORISOV Self-sustained current oscillations in NbO2 thin film vertical devices grown on TiN coated SiO2/Si substrates using pulsed laser deposition		SAMUEL BECK Supersymmetry of IIA Warped Flux AdS and Flat backgrounds	

10:00 - 10:12 AM	JAMES KALLY Characterization of ferromagnetic -MnAl thin films grown by MBE		MEGAN JONES The Double Pulsar: A Laboratory for Relativistic Gravity and Pulsar Emission Physics	
10:12 - 10:24 AM	AMIT KC Growth, structural, dielectric and magnetic properties of epitaxial multiferroic NaMnF_3 thin films	DISHENG CHEN Photon Statistics of Quantum Dot Resonance Fluorescence under the Influence of a Non-Resonant Laser	PETER GENTILE A 350-MHz Green Bank Telescope Survey of Unassociated Fermi LAT Sources	JOHN STEWART Physics Student Attitudes toward Science and Mathematics
10:24 - 10:36 AM	MING YANG Ferroelectricity and Persistent Photocurrent in NaMnF_3 Thin Film	----	AKSHAYA RANE A search for rotating radio transients and fast radio bursts in the Parkes high-latitude pulsar survey	ROSSINA MILLER The Role of Personality and Gender in Performance in Science and Engineering
10:36 - 10:48 AM	----	----	BINGYI CUI New Timing Solutions for Rotating Radio Transients	----
10:48 - 11:00 AM	----	----	JEFFREY PETERSON A Fast Radio Burst with measured Faraday Rotation	----

Coffee Break (Time: 11:00 - 11:30 AM)

Plenary Session

Speaker : Prof. Stephan Schlamming, National Institute of Standards and Technology

Time : 11:30- 12:30 PM *Room*: Salon E

Title : *Measurements of Planck's Constant and the Revision of the SI*

**Awards and Closing Remarks (Time: 02:20 - 03:30 PM)
Salon E**