

[Note: Invited talks indicated in BLUE](#)

Thursday, November 7 - 17:00-18:45

Session 1A Registration & Welcome Reception Physics Building, Lobby

Thursday, November 7 - 19:00-20:00

Session A1 Public Lecture (Open to the Public) Life Sciences Building, Monsanto Auditorium **Moderator: Carlos Wexler, University of Missouri**
 19:00 20:00 *Higgs Boson and Beyond: The Big Questions in* MARK NEUBAUER University of Illinois

Friday November 8 - 8:00-16:00

Session 2A Registration Desk Memorial Union, Stotler III

Friday, November 8 - 8:30-9:54

Session B1	Particle Physics I	Memorial Union, Benton Bingham (2nd floor)	Chair: Bahram Mashhoon, University of Missouri		
8:30	9:06 B1.00001		<i>Higgs boson Properties and Prospects</i>	MARK NEUBAUER	University of Illinois
9:06	9:18 B1.00002		<i>Observation of a Z boson produced in association with a charm quark at the Fermilab Tevatron</i>	JESSICA SECKLER, KEITH MATERA, KEVIN PITTS	Wheaton College, University of Illinois, CDE Collaboration
9:18	9:30 B1.00003		<i>Particle Assignment in the ttH Production Channel of the Higgs Boson</i>	EMMA MOLDEN	University of Illinois
9:30	9:42 B1.00004		<i>The Complete Test Results of 1800 Multi-Anode Photomultiplier Tubes for CMS-HF Calorimeter Upgrade</i>	EMRAH TIRAS	CMS-HCAL COLLABORATION
9:42	9:54 B1.00005		<i>Proposal to search for $D0 \rightarrow \mu+\mu-$ decay at CMS</i>	SULEYMAN DURGUT	
Session B2	Condensed Matter Physics I	Memorial Union, Stotler I+II	Chair: Tom Heitman, University of Missouri		
8:30	9:06 B2.00001		<i>Tb₂Mo₂O₇: Spin glass, spin ice and possible candidate for magnetic monopoles exploration</i>	DEEPAK SINGH	University of Missouri
9:06	9:18 B2.00002		<i>Structural and Magnetic Transitions in Ca₁₀(Fe_{1.996}Pt_{0.004}As₂)₅(Pt₃As₈) studied by neutron and x-ray diffraction</i>	AASHISH SAPKOTA, ANDREAS KREYSSIG, GREGORY TUCKER, MEHMET RAMAZANOGLU, DOUGLAS ROBINSON, ALAN GOLDMAN, ROBERT MCQUEENEY	Iowa State University, Argonne National Lab, UCLA
9:18	9:30 B2.00003		<i>Magnetic Order in CeGe_{1.76} studied by neutron diffraction on single crystals</i>	W. JAYASEKARA, W. TIAN, A. KREYSSIG, S.L. BUD'KO, P.C. CANFIELD, R.J. MCQUEENEY, A.I. GOLDMAN	Iowa State University, Oak Ridge National Lab

9:30	9:42 B2.00004	<i>On the wetting, phase transitions, and diffusion of water on supported bilayer lipid membranes</i>	ZACHARY BUCK, ANDREW MISKOWIEC, MIA BROWN, MENGJUN BAI, JASON COOLEY, RENEE JIJI, HASKELL TAUB, FLEMMING HANSEN, HELMUT KAISER, MADHUSUDAN TYAGI, SOULEYMANE DIALLO, EUGENE MAMONTOV, KENNETH HERWIG	University of Missouri
9:42	9:54 B2.00005	<i>Magnetic diffraction at MURR and possible magnetic ordering in magnetoelectric HoAl₃(BO₃)₄</i>	TOM HEITMANN, QIANG ZHANG, K.C. LIANG, L.M. BEZMATER- NYKH, V.L. TEMEROV, B. LORENZ, DAVID VAKNIN	University of Missouri

Friday, November 8 - 10:00-10:30

Coffee Break

Memorial Union, Stotler III

Friday, November 8 - 10:30-12:00

Session C1	Particle Physics II	Memorial Union, Benton Bingham (2nd floor)	Chair: Mark Neubauer, University of Illinois	
10:30	10:42 C1.00001	<i>Studies of the CMS HF "aging" effect at the High-luminosity LHC</i>	KAMURAN DILSIZ	CMS COLLABORATION
10:42	10:54 C1.00002	<i>J/ψ photo-production at the Relativistic Heavy Ion Collider with STAR</i>	L. CHANAKA DE SILVA	Creighton University, STAR COLLABORATION
10:54	11:06 C1.00003	<i>Evidence of Narrow Structure in the J/ψφ Mass Spectrum in Exclusive B⁺ → J/ψφK⁺ decay at CMS</i>	MAKSAT HAYTMYRADOV	CMS COLLABORATION
11:06	11:18 C1.00004	<i>Optimizing the Monte Carlo Simulation for the Dark-Side Detector</i>	MATTHEW SMALLCOMB, ANDREW ALTON	Augustana College, DARKSIDE Coll.
11:18	11:30 C1.00005	<i>The Muon Charge Asymmetry Measurement in Inclusive pp → W+X production at √s=7 TeV</i>	HASAN OGUL	University of Iowa, CMS COLLABORATION
11:30	11:42 C1.00006	<i>Comparative study of nonperturbative heavy quarks in the nucleon</i>	TIMOTHY HOBBS, JOHN LONDERGAN, WALLY MELNITCHOUK	Indiana University, Jefferson Lab
11:42	11:54 C1.00007	<i>Searches for possible T-odd and P-odd short range interactions using polarized nuclei</i>	RAKSHYA KHATIWADA, PINGHAN CHU, ALEC DENNIS, CHANGBO FU, HAIYAN GAO, GEORGIOS LASKARIS, KE LI, ERICK SMITH, WILLIAM SNOW, HAIYANG YAN, WANGZHI ZHENG	Indiana University, Duke University, Shanghai Jiaotong University
Session C2	Condensed Matter Physics II	Memorial Union, Stotler I+II	Chair: Helmut Kaiser, University of Missouri	
10:30	11:06 C2.00001	<i>Site-inversion versus frustration in the CoAl₂O₄ spinel: A neutron diffraction study at MURR</i>	DAVID VAKNIN	Ames Laboratory & Iowa State University

11:06	11:18 C2.00002	<i>Adsorption-Induced Conformational Changes in Porous Materials</i>	MATTHEW CONNOLLY, CARLOS WEXLER	University of Missouri
11:18	11:30 C2.00003	<i>Diffusion of Squalene in n-alkanes and squalane</i>	BRUCE KOWERT	St. Louis University
11:30	12:06 C2.00004	<i>Emergence of coherence in the charge density wave state of intercalated 2H-NbSe₂</i>	STEPHAN ROSENKRANZ	Argonne National Lab

Friday, November 8 - 12:00-13:50

Lunch Student Lunch & Visit
MURR Visit Visit to the University of Missouri Research Reactor
APS Prairie Section Executive Committee Meeting Physics Building, Room 216

Physics Building, Rooms 221+226

Boxed lunch and visit to the University of Missouri Department of Physics & Astronomy
Must pre-register, contact Dr. Thomas Heitman <heitmann@missouri.edu> at least 1 week in advance. Restr
Boxed lunch & Exec. Cmte. Meeting

Friday, November 8 - 14:00-15:36

Session D1 Astrophysics, Space Physics, Cosmology
Memorial Union, Benton Bingham (2nd floor) Chair: Angela Speck, University of Missouri

14:00	14:36 D1.00001	<i>Thermodynamic modifications to spectral analysis and radiative transfer models of dust: Implications for asteroids, circumstellar dust, and gravitational collapse</i>	ANNE HOFMEISTER	Washington University
14:36	14:48 D1.00002	<i>Using Spatially-Resolved Spectroscopy to Study Star-dust</i>	LACEY DANIELS, SPECK ANGELA, NELSON DESOUZA, SUKLIMA GUHA NIYOGI	University of Missouri
14:48	15:00 D1.00003	<i>A Newtonian bias embedded within the Schwarzschild metric</i>	JOHN LAUBENSTEIN	Northern Illinois University
15:00	15:12 D1.00004	<i>Single Pulsar Timing and Gravitational Waves</i>	ADAM HELFER	University of Missouri
15:12	15:24 D1.00005	<i>Gravitational Anomalies: An Attribute of Every Planetary and Satellite Body: A Natural Law</i>	STEWART BREKKE	Northeastern Illinois University
		<i>Structured mRNA induces the ribosome into a hyper-rotated state</i>	PETER CORNISH, PEIWU QIN, DONGMEI YU, XIAOBING ZUO	University of Missouri

Session D2 Biological Physics
Memorial Union, Stotler I+II Chair: Ioan Kosztin, University of Missouri

14:00	14:12 D2.00001	<i>Predictive modeling of the fusion of uneven multicellular aggregates using Cellular Particle Dynamics simulations</i>	MATTHEW MCCUNE, ASHKAN SHAFIEE, GABOR FORGACS, IOAN KOSZTIN	University of Missouri
14:12	14:24 D2.00002	<i>Investigation of SHAPE mechanism with RNA 3D structure modeling</i>	PEINAN ZHAO, TRAVIS HURST, XIAOJUN XU, KEVIN WEEKS, SHIJIE CHEN	University of Missouri
14:24	14:36 D2.00003	<i>abstract withdrawn</i>		
14:36	14:48 D2.00004	<i>A Physics Approach to the Repositioning of DNA Damage</i>	SARAH LEGRESLEY, MATTHEW ANTONIK	University of Kansas
14:48	15:00 D2.00005	<i>Calculating free energy profiles in systems with memory effects from bi-directional pulling processes</i>	JIONG ZHANG, IOAN KOSZTIN	University of Missouri

15:00	15:12 D2.00006	Glass is a viable substrate for atomic force microscopy of membrane proteins	NAGARAJU CHADA, KRISHNA SIGDEL, TINA MATIN, RAGHAVENDAR REDDY SANGANNA GARI, CHUNFENG MAO, LINDA RANDALL, GAVIN KING	University of Missouri
15:12	15:24 D2.00007	<i>A calibration error revealed via local tip position detection in atomic force microscopy</i>	KRISHNA SIGDEL, GAVIN KING	University of Missouri
15:24	15:36 D2.00008	A novel approach to modeling photon propagation in biological tissue using the scattering signatures of spheroidal particles	VERN HART, TIMOTHY DOYLE	William Woods University, Utah Valley University

Friday, November 8 - 15:36-16:00

Coffee Break

Memorial Union, Stotler III

Friday, November 8 - 16:00-17:36

Session E1 Physics Education

Memorial Union, Benton Bingham (2nd floor) Chair: Meera Chandrasekhar, University of Missouri

16:00	16:36 E1.00001	<i>Flipping Introductory Physics at the University of Illinois</i>	TIM STELZER	University of Illinois
16:36	16:48 E1.00002	<i>Tomorrow's Outstanding Physics Teachers at the University of Missouri</i>	KAREN KING, DOUG STEINHOF	University of Missouri, Columbia Public Schools
16:48	17:00 E1.00003	<i>Barriers to Developing Physics Faculty Knowledge for Teaching: Identifying Gaps through Critical Review of the Literature</i>	DEEPIKA MENON	University of Missouri
17:00	17:36 E1.00004	<i>Facilitating Transfer of Learning and Problem Solving in Physics</i>	N. SANJAY REBELLO	Kansas State University

Session E2 Condensed Matter Physics III

Memorial Union, Stotler I+II

Chair: Sashi Satpathy, University of Missouri

16:00	16:36 E2.00001	<i>Superconductivity in Topological Insulators</i>	YEW SAN HOR	Missouri Univ of Sci & Tech
16:36	16:48 E2.00002	<i>The lifetime of Dirac plasmons in graphene</i>	ALESSANDRO PRINCIPI, GIOVANNI VIGNALE, MATTEO CARREGA, MARCO POLINI	University of Missouri
16:48	17:00 E2.00003	<i>Density-Functional Theory of Thermoelectric Phenomena</i>	FLORIAN G. EICH, GIOVANNI VIGNALE, MASSIMILIANO DI VENTRA	University of Missouri
17:00	17:36 E2.00004	<i>Magnetism in iron-based high-temperature superconductors and its effect on lattice and superconductivity</i>	ANDREAS KREYSSIG	Ames Laboratory & Iowa State University

Friday, November 8 - 17:40-19:00

Session F1 Poster Session

Memorial Union, Mark Twain (2nd floor)
See "Poster Session"

Friday, November 8 - 19:30-21:30

Session G1 Conference Dinner/Banquet
(tickets required) **Memorial Union, Stotler I+II+III**

Saturday November 9 - 8:30-10:06

Session H1	Atomic Molecular and Optical Physics, Industrial Physics	Physics Building, Room 120	Chair: Ping Yu, University of Missouri		
8:30	8:42 H1.00001	Classical Trajectory Studies of the Hydrogen Peroxyl Radical HO ₂	JAMIN PERRY, ALBERT WAGNER, DONALD THOMPSON	University of Missouri	
8:42	8:54 H1.00002	Experimental Evidence for a non-Globally Trace-Preserving POVM	RAYMOND JENSEN	Northern State University	
8:54	9:06 H1.00003	Channelling radiation from a 4 MeV electron beam interaction with a diamond crystal	WADE RUSH, JACK SHI	University of Kansas, FERMILAB A0	
9:06	9:18 H1.00004	Graphene Synthesization by Direct Sonication Exfoliation	ANIEL SODEN, JINCHENG BAI, LIFENG DONG	Missouri State University	
9:18	9:30 H1.00005	Investigation of nitrogen-doped graphene as catalyst and catalyst support for oxygen reduction in both acidic and alkaline solutions	JINCHENG BAI, LIFENG DONG	Missouri State University	
9:30	9:42 H1.00006	PLD growth of multilayered MgO/Ag(001)/MgO pho-tocathode	DANIEL VELAZQUEZ, ZIKRI YUSOF, LINDA SPENTZOURIS, JEFF TERRY	Illinois Institute of Technology	
9:42	9:54 H1.00007	Improved laser heating technique for melting dusty plasma crystals	ZACH HARALSON, JOHN GOREE	University of Iowa	
9:54	10:06 H1.00008	Experimental test of the Fluctuation Theorem using a microsphere in a rarefied gas	CHUN-SHANG WONG, JOHN GOREE, BIN LIU	University of Iowa	
Session H2	Condensed Matter Physics IV	Physics Building, Room 126	Chair: Carsten Ullrich, University of Missouri		
8:30	9:06 H2.00001	A look at graphene's atomistic geometry and electronic properties from the perspective of discrete differential geometry	SALVADOR BARRAZA-LOPEZ	University of Arkansas	
9:06	9:18 H2.00002	Electrical Transport Properties In Large Area Boron-Nitrogen-Carbon Layers	BALEESWARAIAH MUCHHARLA, ARJUN PATHAK, ZHENG LIU, LI SONG, THUSHARI JAYASEKERA, SWASTIK KAR, ROBERT VAJTAI, LUIS BALICAS, PULICKEL AJAYAN, SAIKAT TALAPATRA, NAUSHAD ALI	Southern Illinois University Carbondale, Rice University, Northeastern University	
9:18	9:30 H2.00003	Structural and electronic properties of SrTiO ₃ /LaNiO ₃ slabs with and without oxygen vacancies	PABLO RIVERO, SALVADOR BARRAZA-LOPEZ, JAK TCHAKALIAN, SRIMANTA SMIDDEY	University of Arkansas	

9:30	9:42 H2.00004	<i>Electric Field Tuning of the Rashba Effect</i>	SHANAVAS VEEDU, SASHI SATPATHY	University of Missouri
9:42	9:54 H2.00005	<i>Theoretical studies of terahertz spectra of crystalline energetic materials using molecular dynamics</i>	ANDREY PEREVERZEV, THOMAS SEWELL, DONALD THOMPSON	University of Missouri
9:54	10:06 H2.00006	<i>Time-dependent transition density matrix for visualizing charge-transfer excitations in photoexcited organic donor- acceptor systems</i>	YONGHUI LI, CARSTEN ULLRICH	University of Missouri

Saturday November 9 - 10:06-10:30

Coffee Break

Physics Building, Lobby

Saturday November 9 - 10:30-11:54

Session I1	Condensed Matter Physics V	Physics Building, Room 120	Chair: Paul Miceli, University of Missouri	
10:30	11:06 I1.00001		<i>QSE growth and super-diffusive liquid-like motion in Pb/Si(111) at low temperature</i>	MICHAEL TRINGIDES Iowa State University
11:06	11:18 I1.00005		<i>Minimum stable height of Ag nano-islands on Si(111)7x7</i>	YIYAO CHEN, MICHAEL GRAMLICH, SHAWN HAYDEN, PAUL MICELI University of Missouri
11:18	11:30 I1.00003		<i>Temperature Dependent Electrical Characterization of Graphene Flakes Synthesized Using Liquid Phase Exfoliation</i>	BALEESWARAIAH MUCHHARLA, MITCHELL CONNOLLY, ANDREW WINCHESTER, SUJOY GHOSH, SWASTIK KAR, SAIKAT TALAPATRA Southern Illinois University Carbondale, Rice University, Northeastern University, National High Magnetic Field Lab, Florida State University
11:30	11:42 I1.00004		<i>Interplay between restricted transport and catalytic reaction in nanoporous materials: KMC simulation and analytic theory</i>	ANDRES GARCIA, JING WANG, DAVID ACKERMAN, JAMES EVANS Iowa State University
11:42	11:54 I1.00002		<i>Effect of metal and semiconducting nanoparticles on the fluorescence of Dy³⁺ doped lead and bismuth borate glasses</i>	SAISUDHA MALLUR, STEWART FERRELL, P.K. BABU Western Illinois University
11:54	12:06 I1.00006		<i>Supported shock waves in hydroxyl-terminated polybutadiene melts: A large-scale molecular dynamics study</i>	MARKUS FROELICH, THOMAS SEWELL, DONALD THOMPSON University of Missouri
12:06	12:18 I1.00007		<i>Fluorescence Enhancement and Single Molecule Fluorescence Detection on Nanogap Embedded Plasmonic Gratings fabricated using HD-DVD</i>	VINASH PATHAK, SAGNIK BASURAY, JOSEPH MATHAI, DREW MENKE, KESHAB GANGOPADHYAY, PETER CORNISH, SHUBHRA GANGOPADHYAY University of Missouri