CAM 2015
Graduate Student Physics Meeting
9 - 12 september 2015, Oaxaca, Oaxaca, México

Topics:
- Astronomy, Planetary Sciences, Astrophysics and Cosmology
- Biophysics and Medical Physics
- Computational Physics
- Atomic, Molecular and Optical Physics
- Geophysics and Earth Sciences
- High Energy, Particles, Fields and Nuclear Physics
- Nanoscience & Nanotechnology
- Plasma Physics, Hydrodynamics, Fluids and High-Energy-Density Physics
- Quantum Mechanics and Quantum Information
- Statistical Physics and Thermodynamics
- Condensed Matter, Solid State Physics, Superconductivity and Materials Sciences

http://cam2015.smf.mx
INDEX

GENERAL INFORMATION

Meeting Chair Welcome
CAM 2015 Sponsors
Conference Organizers

INVITED TALKS SCHEDULE

Invited Talk 1- Prof. Kristin Poduska, Memorial University of Newfoundland, CANADA
Invited Talk 2- Prof. A. Encinas-Oropesa, IPICYT-SLP, MÉXICO
Invited Talk 3- Prof. Emanuela Barzi, Fermi Lab, USA
Invited Talk 4- Prof. Susana Lizano, UNAM, MÉXICO
Invited Talk 5- Prof. Michael Steinitz, St. Francis Xavier University, CANADA
Invited Talk 6- Prof. Stefan Westerhoff, University of Wisconsin-Madison, USA
Invited Talk 7- Prof. Allena Opper, Ohio University, USA
Invited Talk 8- Prof. Pablo Bianucci, Concordia University, CANADA
Invited Talk 9- Prof. Luis Mochán, UNAM, MÉXICO
TECHNICAL SESSIONS

Session I. Particle Physics
Session II. Nanoscience and Nanotechnology
Session III. Statistical Physics and Complex Fluids
Session IV. Applied Physics
Session V. Fundamental Physics Phenomena
Session VI. Astrophysics and Cosmology
Session VII. Multidisciplinary Physics
MEETING CHAIR WELCOME MESSAGE

Dear CAM-2015 participants,

The International Organizing Committee is pleased to give all of you the welcome to this wonderful city of Oaxaca, México; to enjoy frontier research in Physics as well as the opportunity to share research experiences with your colleagues in México and abroad.

The participation of graduate students from North America has been numerous and beyond expectations. We welcome those who have travelled from Canada, United States of America, and from across México. We are very pleased with this response and we thank you for helping us make a success of this important event for the International Physics community.

Known hot topics research around the world in Physics are reflected in the Scientific Program of CAM 2015. Particularly hot topics in Fundamental Physics, Astrophysics, Particle Physics, Applied Physics, Statistical Physics, and Nanostructures will be presented as Oral and Poster contributions.

Best of luck to all presenters and participants, and I hope that this conference will increase the scientific collaboration among the young physicists in North America.

Yours Sincerely,

Ricardo Alberto Guirado López
Chair
CAM 2015 SPONSORS

Canada
Canadian Association of Physicists

USA
• American Physical Society Forum of Graduate Students Affairs
• National Science Foundation

México
• Sociedad Mexicana de Física
• Consejo Nacional de Ciencia Y Tecnología
CONFERENCE ORGANIZERS

Canada
Chris Pugh

USA
- Valerie Gray (Chair)
- Josh Einstein
- Krista Freeman
- Emmanouli Kargiantoulakis
- Richard Ruiz

México
- Susana Lizano Soberón
- Carmen Cisneros
- Ricardo Alberto Guirado López
Map & Location of Hotel Misión de Los Angeles, Oaxaca
One of the fundamental themes in materials science research is understanding how the way in which a material is synthesized and processed can be used to tune its physical properties (optical, electronic, magnetic, mechanical, and others). Equally important is understanding how the environment in which a material is used can change its performance over time. I will demonstrate that a detailed understanding of a material’s structure can provide clues about how it was formed, and can also provide hints about how it might change during future use. To do this, I will focus on two applied examples: the ambient degradation of transparent semiconductors, and the time-dependent changes in archaeological materials.
We used a mean field model to explicitly obtain the effective magneto static anisotropy magnetic field in assemblies of exchange decoupled magnetic particles which are contained within an infinite thin film. This model considers the demagnetizing factor of both the individual particles and the outer volume that contains the assembly, and the total anisotropy field is obtained as a function of the center to center distance between particles d. The two-dimensional array was considered of two different ways: 1) a square lattice of equidistant magnetic particles (first order interaction), and 2) a two-dimensional array of linear chains separated from each other a distance d2, which contain magnetic particles separated from each other a distance d1 (second order interaction). When the interaction is the first order, the dipolar interaction between the particles is ferromagnetic and the effective anisotropy field increases with the dipolar interaction. On the other hand, if the interaction is the second order, additionally appears an antiferromagnetic contribution to the dipolar interaction. Different particular cases were examined for the behavior of the total anisotropy field as a function of d1 and d2, and all showed similar results: when the distance between particles is large the ferromagnetic dipolar interaction is the dominant and the effective anisotropy field increases while the spacing between particles decreases; There is a critical separation for which the total anisotropy field reaches a maximum value, below this separation, the antiferromagnetic dipolar interaction is the dominant and the effective anisotropy field decreases when the particles approach each other.
The High Field Magnet (HFM) Program at Fermi Lab has been developing Nb$_3$Sn high field superconducting magnets, materials and technologies for present and future particle accelerators since the late 90s. Its most important breakthroughs include: the development and demonstration of high-performance Nb$_3$Sn strand and cables stable to flux jumps; reliable and reproducible short and long coil fabrication technologies ready for production; accelerator quality mechanical structures; the first world series of Nb$_3$Sn dipole and quadrupole models with reproducible magnet parameters; innovative field quality correction techniques, etc. These advances make it possible to consider for the first time 10-12 T Nb$_3$Sn magnets in accelerators, specifically for the planned LHC luminosity upgrades. The Program is presently exploring limits of the Nb$_3$Sn magnet technology by developing a cost-effective 15 T Nb$_3$Sn dipole demonstrator. The ultimate goal is developing magnet technologies based on both High Temperature Superconductors (HTS) and Low Temperature Superconductors (LTS) to achieve fields of 20 T and beyond. This talk summarizes the main results of the Nb$_3$Sn accelerator magnet and superconductor R&D at Fermi Lab and discusses the Program next steps and possible applications of its results for the LHC, Muon Collider and FCC.
Protoplanetary disks are expected to form as a result of the gravitational collapse of magnetized rotating dense cores. I will discuss recent analytic work and numerical simulations that show that a substantial level of magnetic field diffusion has to occur at high densities in order to form the observed rotationally supported disks. I will also discuss the radial and vertical structure of magnetized accretion disks irradiated by the central star, expected to form in this process. The mass-to-flux ratio is a critical parameter that determines the structure and evolution of these disks. Observations with the powerful radio interferometer Atacama Large Millimeter Array in Chile will be able to establish the value of this ratio in a near future.
This brief talk will be a condensed version of a short-course given at UNAM in Mexico City last year. I will discuss what your editor is looking for and what exactly it is that he or she does. This will, of course, deal with scientific content, but also with questions of attribution of textual material used and the avoidance of any possible implications of plagiarism or duplicate publication. It will be emphasized that communication is an essential part of the scientific endeavor. If you cannot communicate what you have done (verbally and in writing) then you haven’t done it! Whether we like it or not, English has become the world-wide language of communication and a working knowledge is a great, if not essential, part of your preparation to be a working scientist. If you don’t have it, a friend or colleague with good English skills is a very important asset. To write well requires not only language skill, but an understanding of how to write briefly and concisely in a manner that will inform and interest a reader who is not a specialist in your narrow sub-field.
In March 2015, Mexico and the U.S. inaugurated a new high-energy gamma-ray observatory near Puebla, Mexico: the HAWC (High-Altitude Water Cherenkov) Observatory. Located at 4,100 meters altitude on the slope of the dormant volcano Pico de Orizaba, HAWC is a large field-of-view instrument capable of continuously monitoring the northern sky at energies between roughly 100 GeV and 100 TeV, the highest gamma-ray energies observed so far. Over the next decade, HAWC data will be used to study some of the most violent objects in the known Universe, from supermassive black holes to the remnants of supernova explosions, and provide an unbiased survey of the high-energy sky. Since the Earth's atmosphere is opaque to gamma rays at TeV energies, HAWC is a rather unusual astronomical instrument. It comprises 300 large light-tight water tanks covering an area of 20,000 square meters. Each tank is instrumented with four photomultipliers to detect particles from extensive air showers produced by gamma rays and cosmic rays upon entering the Earth's atmosphere. In this talk, I will present the HAWC science case and the detector principle and discuss first results based on data taken since 2013 with the partially deployed detector.
The United States Federal Government provides nearly $140B to support basic and applied scientific research through a number of agencies. Those agencies have different missions and mechanisms for supporting research and after briefly discussing the US federal funding of scientific research I will focus on the National Science Foundation, which provides about 25% of the federally supported research at US universities and colleges. This talk will discuss how NSF funding leads to both transformational and incremental advances in science by supporting individual investigators, research groups, centers, and facilities. The talk will also review NSF’s support of early career scientists.
Can we make lasers faster and more efficient? Can we explore the interaction between quantum mechanical matter and light? Can we detect the presence of a single virus in a drop of water? Can we play with the propagation speed of light pulses? It turns out that we can do that, and much more, by trapping light very tightly. Thanks to advances in fabrication technology it is now routinely possible to make structures that can keep light confined in microscopic spaces. When this happens, the interactions of light with matter can change in both quantitative and qualitative ways and we can harness these changes to our advantage. The workhorse device for trapping light at such small scales is the optical micro-resonator. I will introduce the working principles of different optical micro-resonators, and some of the cool phenomena that have been demonstrated with them.
Metamaterials are artificial materials made of the alternation of ordinary materials, but with properties that are frequently exotic, not resembling those of neither of its components. When the length scales that characterize a metamaterial are much smaller than the wavelength of an electromagnetic perturbation, its response may be characterized by a macroscopic, homogenized, dielectric function. Even when the length scales are comparable or even larger than the wavelength, a macroscopic response may be appropriate, but only by accounting for spatial as well as temporal dispersion. We develop a formalism for the calculation of the macroscopic response using a computationally efficient recursive procedure that mimics electronic structure calculations and that accounts separately for the microscopic geometry of the system and for its composition. As examples of its use we design metamaterials with extreme linear and circular dichroism. We show how accounting for spatial dispersion allows us to obtain the photonic bands of periodic photonic crystals. Our formalism also allows the calculation of the microscopic field and from it the nonlinear response of the system. Thus we find metamaterials that generate optical second harmonic (SH) although they are made of materials for which SH is symmetry-forbidden.
GENERAL PROGRAM

WED, SEP 9

16:00—19:00    Registration

19:00—20:00    Welcome Cocktail

THU, SEP 10

08:30—09:00    Welcoming Ceremony (Plenary Room)

09:00—09:50    Invited Talk 1 (Plenary Room)

Tracking the Life Cycle of a Material Through its Structure

Prof. Kristin Poduska, Memorial University of Newfoundland, CANADA

Chairman: Prof. A. Encinas-Oropesa (MÉXICO)
10:00—10:45 Simultaneous Sessions I—III
   I. Particle Physics (Conference Room 1)
   II. Nanoscience and Nanotechnology (Conference Room 2)
   III. Statistical Physics and Complex Fluids (Conference Room 3)

10:45—11:00 Coffee Break

11:00—12:00 Simultaneous Sessions IV—VI
   IV. Applied Physics (Conference Room 1)
   V. Fundamental Physics Phenomena (Conference Room 2)
   VI. Astrophysics and Cosmology (Conference Room 3)

12:10—13:00 Invited Talk 2 (Plenary Room)

Magnetic Dipolar Interactions: a Tool to Control the Magnetic Properties in Materials Based on Particle Assemblies

Prof. A. Encinas-Oropesa, IPICyT, MÉXICO

Chairman: Prof. Michael Steinitz (CANADA)

13:00—15:00 Lunch Break

15:00—15:50 Invited Talk 3 (Plenary Room)

15 Years of R&D on Superconducting Accelerator Magnets at Fermilab

Prof. Emanuela Barzi, Fermi Lab, USA

Chairwoman: Prof. Susana Lizano (MÉXICO)

15:50—16:00 Coffee Break
16:00—17:00 Simultaneous Sessions I—III (continued)

I. Particle Physics (Conference Room 1)
II. Nanoscience and Nanotechnology (Conference Room 2)
III. Statistical Physics and Complex Fluids (Conference Room 3)

17:10—18:00 Invited Talk 4 (Plenary Room)

Gravitational Collapse of Dense Cores and the Formation of Protoplanetary Disks

Prof. Susana Lizano, UNAM, MÉXICO

Chairwoman: Prof. Kristin Poduska (CANADA)

18:00—19:30 Poster Session

20:00— Banquet at the Terrace Hotel and Guelaguetza

FRI, SEP 11

09:00—09:50 Invited Talk 5 (Plenary Room)


Prof. Michael Steinitz, St. Francis Xavier University, CANADA

Chairwoman: Prof. Carmen Cisneros (MÉXICO)

10:00—10:45 Simultaneous Sessions I—II (continued)

I. Particle Physics (Conference Room 1)
II. Nanoscience and Nanotechnology (Conference Room 2)
10:45—11:00 Coffee Break

11:00—12:00 Simultaneous Sessions IV and V (continued)

IV. Applied Physics (Conference Room 1)
V. Fundamental Physics Phenomena (Conference Room 2)

12:10—13:00 Invited Talk 6 (Plenary Room)

**HAWC: A New Gamma-Ray Observatory to Probe Nature's Highest-Energy Accelerators**

*Prof. Stefan Westerhoff*, University of Wisconsin-Madison, USA

*Chairman: Prof. Luis Mochán (MÉXICO)*

13:00—15:00 Lunch Break

15:00—15:50 Invited Talk 7 (Plenary Room)

**United States Federal Governmental Funding for Scientific Research**

*Prof. Allena Opper*, Ohio Univesity, USA

*Chairman: Prof. Pablo Bianucci (CANADA)*

15:50—16:00 Coffee Break

16:00—17:00 Simultaneous Sessions IV—V (continued)

IV. Applied Physics (Conference Room 1)
V. Fundamental Physics Phenomena (Conference Room 2)
17:10—18:00  Invited Talk 8 (Plenary Room)

Tightly Squeezing Light in Small Spaces

Prof. Pablo Bianucci, Concordia University, CANADA

Chairman: Prof. Stefan Westerhoff (USA)

18:00—18:30  Session VII (Conference Room 1)

VII. Multidisciplinary Physics

18:30—19:30  Panel Discussion (Plenary Room)

Physics Journals: Past, Present, and Future

- Prof. Michael Steinitz, St. Francis Xavier University, CANADA
- Prof. Francisco Ramos Gómez, Facultad de Ciencias, UNAM

SAT, SEP 12

09:00—09:50  Invited Talk 9 (Plenary Room)

Macroscopic Electrodynamics of Nanostructured Metamaterials

Prof. Luis Mochán, UNAM, MÉXICO

Chairman: Prof. Francisco Ramos Gómez (MÉXICO)

10:00—11:15  Simultaneous Sessions I, IV, VI (continued)

I. Particle Physics (Conference Room 1)
IV. Applied Physics (Conference Room 2)
VI. Astrophysics and Cosmology (Conference Room 3)
11:15—11:30  Coffee Break

11:30—11:50  Closing Remarks (Plenary Room)

SUN, SEP 13

10:00—17:00  EXCURSION TO MONTE ALBAN
SIMULTANEOUS SESSIONS

PROGRAM

THU, SEP 10

PLENARY ROOM

09:00—09:50 Invited Talk 1

Conference Room 1

Session I. Particle Physics

Chairman: Luis Salvador Miranda Palacios (MÉXICO)

10:00—10:15 I.1 M. Cervantes (CANADA). Ariel Beam Target

10:15—10:30 I.2 Carlos Juárez León (MÉXICO). Radiative Corrections to the Dalitz Plots of $K_{13}^0$ Decays

10:30—10:45 I.3 Wade S Duvall (USA). Beam Normal Single Spin Asymmetries in Electron Scattering From Selected Targets

10:45—11:00 Coffee Break

Session IV. Applied Physics

Chairman: Benjamin Rosemeyer (USA)

11:00—11:15 IV.1 F.E. Loranca-Ramos (MÉXICO). Craters and Granular Jets Generated By Underground Cavity Collapse


11:30—11:45 IV.3 J.P. Chakrabarty (CANADA). Enhanced Photovoltaic Power Conversion Efficiency in Ferroelectric Thin Films

11:45—12:00 IV.4 Payam Taheri (USA). Growth and Characterization of the Centimeter Scale Monolayer MoS$_2$ for Device Applications

PLENARY ROOM

12:10—13:00 Invited Talk 2

13:00—15:00 Lunch Break
THU, SEP 10

PLENARY ROOM

09:00—09:50 Invited Talk 1

Conference Room 2

Session II. Nanoscience and Nanotechnology
Chairman: G. Vélez (MÉXICO)

10:00—10:15 II.1 Andrew Kozbial (USA). Understanding the Intrinsic Water Wettability of Graphite and MoS₂


10:30—10:45 II.3 Anirban Kundu (USA). Chirality of Domain Wall in Ultrathin Ferromagnetic Film

10:45—11:00 Coffee Break

Session V. Fundamental Physics Phenomena
Chairman: C. J. Pugh (CANADA)

11:00—11:15 V.1 R. Ramos (CANADA). Tunneling Dynamics of a Bose-Einstein Condensate

11:15—11:30 V.2 Israel Portillo Vázquez (USA). BCS–BEC Crossover in a Nambu-Jona-Lasinio Model with Multi-Fermion Interactions

11:30—11:45 V.3 L. N. Trujillo (MÉXICO). Molecular Electronic Stopping Cross Section within a Harmonic Oscillator and FSGO Approach

11:45—12:00 V.4 R. Manson (CANADA). Population Inversion in Pulse-Driven Semiconductor Quantum Dots due to Phonon Emission: an Open System Quantum Optics Approach

PLENARY ROOM

12:10—13:00 Invited Talk 2

13:00—15:00 Lunch Break
THU, SEP 10
PLENARY ROOM
09:00—09:50 Invited Talk 1

Conference Room 3

Session III. Statistical Physics and Complex Fluids
Chairman: Edilio Lázaro Lázaro (MÉXICO)

10:00—10:15 III.1 J. Villanueva-Valencia (MÉXICO). Quasi-universal Short-time Dynamics in Quasi-Two-Dimensional Anisotropic Colloidal Mixtures

10:15—10:30 III.2 Andrii Bozhko (USA). Anomalous Scattering andRedirection of Sound in Narrow Liquid Channels

10:30—10:45 III.3 E. Cortes-Morales (MÉXICO). Equilibration and Aging of Liquids with Non-spherical Interacting Particles

10:45—11:00 Coffee Break

Session VI. Astrophysics and Cosmology
Chairman: Aníbal Sierra Morales (MÉXICO)

11:00—11:15 VI.1 I. Stern (USA). The Axion Dark Matter Experiment (ADMX)

11:15—11:30 VI.2 D. Rangaswamy (MÉXICO). NIR Polarimetry of Molecular Cloud Associated with IRAS 18236—1205

11:30—11:45 VI.3 Nesar S. Ramachandra (USA). Multi-Stream Portrait of the Cosmic WEB

11:45—12:00 VI.4 Angélica F. González Fajardo (MÉXICO). Galactic Habitable Zone

PLENARY ROOM
12:10—13:00 Invited Talk 2
13:00—15:00 Lunch Break
THU, SEP 10

PLENARY ROOM

15:00—15:50  Invited Talk 3
15:50—16:00  Coffee Break

Conference Room 1

Session I. Particle Physics

Chairman: Joydeep Roy (USA)

16:00—16:15  I.4  Richard Ruiz (USA). QCD Corrections to Heavy Type III Seesaw Leptons
16:15—16:30  I.5  Luis Salvador Miranda Palacios (MÉXICO). Some Possible Sources of Icecube TEV-PEV Neutrino Events
16:30—16:45  I.6  F. Maldonado (CANADA). Ariel. Phase I and Beam Tuning Dump Protection System
16:45—17:00  I.7  Anna R. Lee (USA). Parity-Violating Asymmetry in the n->δ

PLENARY ROOM

17:10—18:00  Invited Talk 4
18:00—19:30  Poster Session
THU, SEP 10

PLENARY ROOM
15:00—15:50  Invited Talk 3
15:50—16:00  Coffee Break

Conference Room 2

Session II. Nanoscience and Nanotechnology

Chairman: Ramón Antonio Silva Molina (MÉXICO)

16:00—16:15  II.4  Burcu Ozden (USA). Qualitative Analysis of Surface Traps in AlGaN/GaN HEMTS Structures Using TRPC Spectroscopy
16:15—16:30  II.5  Miguel Ángel García (MÉXICO). Morphology of Ti and Ti-6Al-4V Surfaces with MeV Au Ions
16:30—16:45  II.6  Rabi Khanal (USA). Composition-Dependent Structural and Transport Properties of Amorphous Transparent Conducting Oxides
16:45—17:00  II.7  Rubén Omar Torres Barrera (MÉXICO). Biosynthesized Silver Nanoparticles Using Capsicum Genre Fruit Extract

PLENARY ROOM
17:00—18:00  Invited Talk 4
18:00—19:30  Poster Session
THU, SEP 10

PLENARY ROOM

15:00—15:50 Invited Talk 3
15:50—16:00 Coffee Break

Conference Room 3

Session III. Statistical Physics and Complex Fluids

Chairman: Andrii Bozhko (USA)

16:00—16:15 III.4 Abhilash Reddy Malipeddi (USA). Effect of a Fluid Filament’s Curvature on its Stability

16:15—16:30 III.5 Edilio Lázaro Lázaro (MÉXICO). Glasses and Gels: Non-equilibrium States in Binary Mixtures

PLENARY ROOM

17:10—18:00 Invited Talk 4
18:00—19:30 Poster Session
THU, SEP 10
POSTER SESSION
18:00—19:30


P2. Chinta Mani Aryal (USA). Plasma Wave Instabilities in Non Equilibrium Graphene

P3. Shafat Mubin (USA). Forces and Dynamics in Aromatic Overlayers on Metal Surfaces

P4. Ilse Nava (USA). Microemulsions with Ultra-low IFT Values via Janus Nanoparticles


P8. Sudip Pandey (USA). Magnetic and Magnetocaloric Properties of Boron Doped Ni-Mn-In Alloys

P9. Katherine Copenhagen (USA). Heterogeneities in Cell Cluster Motion

P10. Yoshua Chávez Bolaños (MÉXICO). Diffusion in Linear Porus Media with Periodic Entropy Barriers: a Tube Formed by Contacting Elipsoids

P11. J. Hernández-Ibarra (MÉXICO). Effective Charges in Concentrated Colloidal Solutions
FRI, SEP 11

PLENARY ROOM

09:00—09:50 Invited Talk 5

Conference Room 1

Session I. Particle Physics

Chairwoman: Valerie Gray (USA)

10:00—10:15 I.8 Yesica Sonia Flores Meraz (MÉXICO). Suppression of $f \rightarrow f_1 f_2 f_3$ Lepton Flavor Violation Processes in Extensions of the Standard Model with Family Symmetry

10:15—10:30 I.9 A.D. MacLean (CANADA). Y-Y Angular Correlation Measurements with Griffin

10:30—10:45 I.10 Roman Shapovalov (USA). X-Pinch Radiation Performance of a New, 2-LTD-Bricks X-Pinch Driver

10:45—11:00 Coffee Break

Session IV. Applied Physics

Chairman: F.E. Loranca-Ramos (MÉXICO)

11:00—11:15 IV.5 Benjamin Rosemeyer (USA). Magnetic Implications of Non-uniform Superconductivity


11:30—11:45 IV.7 William Mayer (USA). Frequency Dispersion of Nonlinear Response Thin Superconducting Films

11:45—12:00 IV.8 Shrishti Yadav (USA). NMR in new BiS$_2$-layered superconductor LaO$_{0.5}$F$_{0.5}$BiS$_2$

PLENARY ROOM

12:10—13:00 Invited Talk 6
FRI, SEP 11

PLENARY ROOM

09:00—09:50 Invited Talk 5

Conference Room 2

Session II. Nanoscience and Nanotechnology

Chairman: Andrew Kozbial (USA)

10:00—10:15 II.8 S. Alagha (CANADA). Simulation of Space-Charge-Limited Current in Semiconductor Nanowires


10:30—10:45 II.10 A.Y. Sánchez-Treviño (MÉXICO). Trapping DNA Like Network Structures at Low pH

10:45—11:00 Coffee Break

Session V. Fundamental Physics Phenomena

Chairwoman: L.N. Trujillo (MÉXICO)

11:00—11:15 V.5 C. J. Pugh (CANADA). A Fine Pointing System Suitable for Quantum Communications on a Satellite

11:15—11:30 V.6 José Manuel Méndez Martínez (MÉXICO). On the No-Signaling Approach to Quantum Nonlocality

11:30—11:45 V.7 Pardis Niknejadi (USA). Radiated Power and Radiation Reaction Forces of Coherently Oscillating Charge Particles in Classical Electrodynamics

11:45—12:00 V.8 E. Dupuis (CANADA). Tunneling Decay of False Kinks

PLENARY ROOM

12:10—13:00 Invited Talk 6
FRI, SEP 11

PLENARY ROOM
15:00—15:50 Invited Talk 7
15:50—16:00 Coffee Break

Conference Room 1

Session IV. Applied Physics

Chairman: J.P. Chakrabarty (CANADA)

16:00—16:15 IV.9 J. Flores-Marquez (MÉXICO). Study of the CdO Influence in the Photovoltaic Efficiency of CdTe Solar Cells

16:15—16:30 IV.10 Berna Akgenc (USA). Electro-Thermo-Mechanical Properties and Defect Kinetics in $A_xA'_{(1-x)}B_yB'_{(1-y)}O_3$ Ceramics

16:30—16:45 IV.11 N. Santillan (MÉXICO). Denaturation of DNA by Dissipation of UV-C Photons: Experiment to Test the Thermodynamic Dissipation Theory of Life

16:45—17:00 IV.12 Abhay Singh (USA). Template-Assisted Synthesis of InSb Nanowire Arrays in Nanoporous AAO and its Device Implications

PLENARY ROOM
17:10—18:00 Invited Talk 8

Session VII. Multidisciplinary Physics

Chairman: E. Cortes-Morales (MÉXICO)

18:00—18:15 VII.1 Muhammad Riaz (USA). Interactive Simulations in Physics Secondary Education and Student Achievement

18:15—18:30 VII.2 Dawn King (USA). Evolutionary Dynamics of Population Recovery and Collapse

PLENARY ROOM
18:30—19:30 Panel Discussion
FRI, SEP 11

PLENARY ROOM

15:00—15:50 Invited Talk 7
15:50—16:00 Coffee Break

Conference Room 2

Session V. Fundamental Physics Phenomena

Chairwoman: Denhi Martínez (MÉXICO)

16:00—16:15 V.9 G. Torres-Vargas (MÉXICO). Elastic Curves Under Long-Range Forces

16:15—16:30 V.10 L. Alarie-Vezina (CANADA). Toward a Theory of Symmetric Functions in N=2 Superspace

16:30—16:45 V.11 Eteri Svanidze (USA). Doping-Induced Quantum Critical Point in Itinerant Antiferromagnet

16:45—17:00 V.12 Yonglong Xie (USA). Anisotropic Tunneling Between Spin-Polarized Tips and Substrate with Strong Spin-Orbit Coupling

PLENARY ROOM

17:10—18:00 Invited Talk 8

PLENARY ROOM

18:30—19:30 Panel Discussion
CAM Physics Meeting-2015

SAT, SEP 12

PLENARY ROOM

09:00—09:50 Invited Talk 9

Conference Room 1

Session I. Particle Physics

Chairman: Richard Ruiz (USA)

10:00—10:15 I.11 J. Campbell (CANADA). The Coordinate Detector for Jefferson Lab’s Super Bigbite Spectrometer Facility

10:15—10:30 I.12 Valerie Gray (USA). The Qweak Experiment: Search for new Physics at the TEV Scale Via a Measurement of the Proton’s Weak Charge

10:30—10:45 I.13 Joydeep Roy (USA). Imposing LHC Constraints on the Combined Anomaly and Z’-Mediation Mechanism of Supersymmetry Breaking

10:45—11:00 I.14 Christopher Plumberg (USA). Event-by-Event Fluctuations of HBT Radii and the QGP Shear Viscosity

11:15—11:30 Coffee Break

PLENARY ROOM

11:30—11:50 Concluding Remarks

SUN, SEP 13

10:00—17:00 EXCURSION TO MONTE ALBAN
SAT, SEP 12

PLENARY ROOM

09:00—09:50 Invited Talk 9

Conference Room 2

Session IV. Applied Physics

Chairman: Abhay Singh (USA)

10:00—10:15 IV.13 J. Arriaga-Hernández (MÉXICO). Irradiance transport equation Reduced for the Recovery of the Wavefront Applied to Optical Metrology

10:15—10:30 IV.14 Jialei Song (USA). Analysis of the Aerodynamics of Calliope Hummingbird Forward Flight

10:30—10:45 IV.15 J. Contreras-Vite (MÉXICO). A Discrete-State Markov Model for Channel-Protein TMEM16A/AN01

10:45—11:00 IV.16 Tiernan Casey (USA). Combustion Enhancement by Non-Thermal Plasma

11:00—11:15 IV.17 Denhi Martinez (MÉXICO). Studies by Multiphoton Ionization of Organic Molecules

11:15—11:30 Coffee Break

PLENARY ROOM

11:30—11:50 Concluding Remarks

SUN, SEP 13

10:00—17:00 EXCURSION TO MONTE ALBAN
SAT, SEP 12

PLENARY ROOM

09:00—09:50 Invited Talk 9

Conference Room 3

Session VI. Astrophysics and Cosmology

Chairman: Nesar S. Ramachandra (USA)

10:00—10:15 VI.5 Karl Young (USA). Broad-band, Cryogenic, Anti-reflection Coatings for Astrophysical Millimeter Wave Observations


10:30—10:45 VI.7 Sourabh Nampalliwar (USA). Nature of Singularities in Spherical Perfect Fluid Collapse

10:45—11:00 VI.8 Anibal Sierra Morales (MÉXICO). Dust Evolution in Protoplanetary Disks

11:15—11:30 Coffee Break

PLENARY ROOM

11:30—11:50 Concluding Remarks

SUN, SEP 13

10:00—17:00 EXCURSION TO MONTE ALBAN