

KAVLI INSTITUTE FOR THEORETICAL PHYSICS
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KITP Conference: Symmetry Tests in Nuclei and Atoms
 (Sep 19-23, 2016)

Coordinators: Mei Bai, Susan Gardner, Susanne Mertens, and Andreas Wirzba

Monday, Sep 19, 2016

Nuclear Probes of New Physics at the Precision Frontier, Chair: Barry R. Holstein (UMass Amherst)

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|---------|------------------------------------|---|
| 8:50am | Mark Bowick (KITP Deputy Director) | Welcome |
| 9:00am | Adam Ritz (U Victoria) | Precision Symmetry Tests and Electric Dipole Moments (EDMs) |
| 9:45am | Jonathan Feng (UC Irvine) | Fifth Forces |
| 10:30am | | Morning Break |
| 11:00am | Thierry Lasserre (CEA, Saclay) | Sterile Neutrinos and the Reactor Antineutrino Anomaly |
| 11:45am | Daniel A. Dwyer (LBL) | Sterile Neutrinos: Experimental Searches |
| 12:30pm | | Lunch Break |

Dark Matter, Sterile Neutrinos, and Neutrino Mass Hierarchy, Chair: Richard J. Furnstahl (OSU)

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| 2:00pm | George Fuller (UC San Diego) | Sterile Neutrinos (Theory & Cosmology) |
| 2:30pm | Michael Wurm (U Mainz) | Neutrino Mass Hierarchy |
| 3:00pm | Mu-Chun Chen (UC Irvine) | Neutrino Masses and CP Violation |
| 3:30pm | | Afternoon Break |
| 4:00pm | Richard J. Hill (U Chicago) | Effective Field Theory, One-Body Operators and Dark Matter |
| 4:30pm | Martin Hoferichter (U Washington) | Effective Field Theory, Two-Body Currents and Dark Matter |
| 5:00pm | Javier Menendez (U Tokyo) | Nuclear Response and Dark Matter |
| 5:30pm | | SHUTTLE TO BWSCI |

Tuesday, Sep 20, 2016

Nuclear Probes of Neutrino Mass and B-L Violation, Chair: Brian C. Tiburzi (CCNY)

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| 9:00am | Jonathan Engel (U North Carolina) | Neutrinoless Double Beta Decay (Nuclear Theory) |
| 9:45am | Matteo Agostini (TU München) | Neutrinoless Double Beta Decay (Experiment) |
| 10:30am | | Morning Break |
| 11:00am | Diana Parno (U Washington) | Direct Neutrino Mass Measurements |
| 11:45am | R. N. Mohapatra (U Maryland) | B-L Violation and Neutrino Mass (Theory) |
| 12:30pm | | Lunch Break |

Electric Dipole Moments of the Nucleon and Light Nuclei

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|--------|---------------------------------|---|
| 2:00pm | Kurt Aulenbacher (U Mainz) | An Accelerator Physicist's View on Symmetry Violation Experiments |
| 2:45pm | Brad Filippone (Caltech) | Neutron EDMs |
| 3:30pm | | Afternoon Break |
| 4:00pm | Young-Im Kim (IBS Daejeon) | Proton EDMs in Storage Rings |
| 4:30pm | Frank Rathmann (FZ Jülich) | Spin Physics and Deuteron EDMs in Storage Rings |
| 5:00pm | N. N. Nikolaev (Landau, Moscow) | A Theorist's View on Storage Rings and EDMs |

5:30pm RECEPTION
 6:00pm SPECIAL EVENTS DINNER
 8:00pm SHUTTLE TO BWSCI

Wednesday, Sep 21, 2016

EDMs of Atoms and Molecules, Chair: Joseph A. Carlson (LANL)

9:00am Blayne Heckel (U Washington) EDMs of Diamagnetic Atoms: 199 Hg
 9:45am Matt Dietrich (ANL) EDM of Diamagnetic Atoms: 225 Ra
 10:30am Morning Break

11:00am John Doyle (Harvard) Search for the Electric Dipole Moment of the Electron with Thorium Monoxide-- The ACME Experiment
 11:45am Will Cairncross (Boulder) EDMs from Molecular Ions
 12:30pm Lunch Break

2:00pm FREE AFTERNOON-Shuttle Available to BWSCI

Thursday, Sep 22, 2016

EFT and Lattice Studies of EDMs and Hadronic Matrix Elements, Chair: Sinya Aoki (Kyoto U)

9:00am Jordy de Vries (NIKHEF Amsterdam) An EFT Approach to Hadronic EDMs
 9:45am Sergey Syritsyn (JLab/Stony Brook) Lattice Calculation of Neutron and Proton EDMs
 10:30am Morning Break

11:00am Constantia Alexandrou (Cyprus) Lattice Calculation for Neutron EDMs with $N_f = 2+1+1$ Twisted Mass B.C.s
 11:45am Amy Nicholson (UC Berkeley) Neutrinoless Double-Beta Decay from Lattice QCD
 12:30pm Lunch Break

Non-EDM Studies of P and T Violation with Nuclei and Atoms, Chair: Roxanne Springer (Duke U)

2:00pm Yonatan Kahn (Princeton) SQUID Magnetometer Detection of Axion Dark Matter
 2:45pm Victor Flambaum (New South Wales) Violation of Fundamental Symmetries & Variation of Fundamental Constants Produced by Dark matter
 3:30pm Afternoon Break

4:00pm Chris Crawford (U Kentucky) Measurement of P Violation Asymmetry in $n\ p \rightarrow d\ \gamma$
 4:45pm David Armstrong (William & Mary) Parity-Violating Electron Scattering and Q-Weak
 5:30pm RECEPTION

6:00pm SPECIAL EVENTS DINNER
 8:00pm SHUTTLE TO BWSCI

Friday, Sep 23, 2016

Windows on Exotica and More with Neutrons, Nuclei, and Atoms, Chair: Susan Gardner (U Kentucky)

9:00am Matt Jaffe (UC Berkeley) Atom Interferometers and Constraints on Dark Energy
 9:45am Peter Fierlinger (TU München) Magnetic Shielding and Applications to EDMs and BSM Physics
 10:30am Morning Break

11:00am Chen-Yu Liu (Indiana U) Overview of Neutron Lifetime (and Correlation) Experiments
11:45am Huey-Wen Lin (MSU) Precision Neutron-Decay Matrix Elements
12:30pm **Lunch Break**

Overviews, Chair: Martin Savage (INT Seattle)

2:00pm Eric Adelberger (U Washington) Exotic Spin-Dependent Interactions of Electrons
2:45pm Vincenzo Cirigliano (LANL) Electric Dipole Moments and New Sources of CP Violation
3:30pm **CONFERENCE END- SHUTTLE TO BWSCI Also available to SB Airport and SB Airbus, Goleta location
(See Registration Desk to sign up.)**