



<http://kicp-workshops.uchicago.edu/2015-lowecal/>

WORKSHOP PROGRAM

The Kavli Institute for Cosmological Physics (KICP) at the University of Chicago is hosting a workshop on the calibration of the energy response of a wide range of different targets and technologies that are currently being implemented and/or explored for the detection of the lowest energy signals from dark matter and neutrino interactions. These include scintillating crystals, ionization and phonon solid state detectors, noble liquid scintillation and ionization detectors, and superheated detectors.

We aim to bring together a diverse group of scientists to report, propose and discuss the various calibration techniques.

Current research at KICP includes multiple efforts, on- and off-site, on the calibration of bubble chambers, charge coupled devices, noble liquid time projection chambers, p-type point-contact Ge detectors and CsI crystals.

Organizing Committee

Alvaro Chavarria

Kavli Institute for Cosmological Physics

Juan Collar

Kavli Institute for Cosmological Physics

Luca Grandi

Kavli Institute for Cosmological Physics

Paolo Privitera

Kavli Institute for Cosmological Physics

Richard Saldanha

Kavli Institute for Cosmological Physics

Wednesday - September 23, 2015

8:45 AM - 9:00 AM	Breakfast
9:00 AM - 10:15 AM	SESSION I <i>Chairs: Alvaro Chavarria, Richard Saldanha</i>
9:00 AM - 9:15 AM	Welcome
9:15 AM - 9:45 AM	Dongming Mei , The University of South Dakota <i>Detector Response to Low-Energy Recoils</i>
9:50 AM - 10:10 AM	Lu Wang , The University of South Dakota <i>Xenon detectors response to low energy recoils for dark matter searches</i>
10:15 AM - 10:30 AM	Coffee
10:30 AM - 12:05 PM	SESSION II <i>Chair: Ben Loer</i>
10:30 AM - 11:00 AM	Qing Lin , Columbia University <i>Response and Discrimination of Low-Energy Electronic and Nuclear Recoils in Liquid Xenon</i>
11:05 AM - 11:35 AM	Tarek Saab , University of Florida <i>Precision Measurement Of Nuclear Recoil Ionization Yields For Low Mass Wimp Searches</i>
11:40 AM - 12:00 PM	Wenzhao Wei , The University of South Dakota <i>Germanium Detector Response to Low Energy Recoils for Dark Matter Searches</i>
12:05 PM - 1:25 PM	Lunch
1:25 PM - 3:10 PM	SESSION III <i>Chair: Luca Grandi</i>
1:25 PM - 1:55 PM	Seonho Choi , Seoul National University <i>Measurement of the Quenching and Channeling Effects in a CsI Crystal</i>
2:00 PM - 2:30 PM	Luke Goetzke , Columbia University <i>Light and Charge Yield of Low-Energy Electronic Recoils in Liquid Xenon</i>
2:35 PM - 3:05 PM	James R Verbus , Brown University <i>Measurement of Ultra-low Energy Nuclear Recoils in the LUX Detector Using a D-D Neutron Generator</i>
3:10 PM - 3:25 PM	Coffee
3:25 PM - 5:00 PM	SESSION IV <i>Chair: Richard Saldanha</i>
3:25 PM - 3:55 PM	Gaosong Li , Shanghai Jiao Tong University <i>Neutron Calibration Sources in the Daya Bay Experiment</i>
4:00 PM - 5:00 PM	Discussion
5:00 PM	REFRESHMENTS

Thursday - September 24, 2015

8:45 AM - 9:00 AM	Breakfast
9:00 AM - 10:45 AM	SESSION I <i>Chair: Guillaume Plante</i>
9:00 AM - 9:30 AM	Kaixuan Ni , University of California, San Diego <i>Modelling Xenon Scintillation and Ionization Mechanisms in NEST</i>
9:35 AM - 10:05 AM	Richard Saldanha , Kavli Institute for Cosmological Physics <i>Scintillation and Ionization Yield of Liquid Argon Nuclear Recoils</i>
10:10 AM - 10:40 AM	Javier Tiffenberg , Fermilab <i>Results from the Antonella experiment</i>
10:45 AM - 11:00 AM	Coffee
11:00 AM - 12:10 PM	SESSION II <i>Chair: Yann Guardincerri</i>
11:00 AM - 11:30 AM	Jingke Xu , Lawrence Livermore National Laboratory <i>Scintillation efficiency measurement of Na recoils in NaI(Tl) below the DAMA/LIBRA energy threshold</i>
11:35 AM - 12:05 PM	Samuele Sangiorgio , Lawrence Livermore National Lab <i>Calibration and Modeling of Nuclear and Electron Recoils in Liquid Argon</i>
12:10 PM - 1:30 PM	Lunch
1:30 PM - 3:05 PM	SESSION III <i>Chair: Mariangela Settimo</i>
1:30 PM - 1:50 PM	Alan E Robinson , Fermilab / University of Chicago <i>Photoneutron Source Characterization and Neutron Simulations</i>
1:55 PM - 2:25 PM	Alvaro Chavarria , Kavli Institute for Cosmological Physics <i>Response of a CCD to low energy nuclear recoils from a ^{124}Sb-^9Be photo-neutron source</i>
2:30 PM - 3:00 PM	Lauren Hsu , Fermilab <i>Calibration of SuperCDMS detectors with a photoneutron source</i>
3:05 PM - 3:20 PM	Coffee
3:20 PM - 5:45 PM	SESSION IV <i>Chair: Alvaro Chavarria</i>
3:20 PM - 3:50 PM	Phillip S Barbeau , Duke University <i>Recoils from Neutrinos: past, present, future</i>
3:55 PM - 5:45 PM	Discussion
5:45 PM	RECEPTION

Friday - September 25, 2015

8:45 AM - 9:00 AM	Breakfast
9:00 AM - 10:35 AM	SESSION I <i>Chair: Masayuki Wada</i>
9:00 AM - 9:30 AM	Peter Sorensen, LBL <i>The limitations of Lindhard theory to predict the ionization produced by nuclear recoils at the lowest energies</i>
9:35 AM - 9:55 AM	Darryl Masson, Purdue University <i>A Rn-220 source for internal calibration of low-background detectors</i>
10:00 AM - 10:35 AM	Eric Dahl, Northwestern University <i>Bubble Chamber Physics -- electron and nuclear recoil response in the PICO dark matter detectors</i>
10:35 AM - 10:50 AM	Coffee
10:50 AM - 12:20 PM	SESSION II <i>Chair: Paolo Privitera</i>
10:50 AM - 11:20 AM	Juan Collar, Kavli Institute for Cosmological Physics <i>You are doing it wrong: the intricacies of low-energy nuclear recoil calibrations</i>
11:25 AM - 11:55 AM	Bjorn J Scholz, University of Chicago <i>Measuring the quenching factor of germanium at low energies using an $^{88}\text{Y}/\text{Be}$ photoneutron source</i>
12:00 PM - 12:20 PM	Ritoban Basu Thakur, KICP <i>For when we get there, detectors @ 5-50 eV</i>
12:25 PM - 1:45 PM	Lunch
1:45 PM - 3:00 PM	SESSION III <i>Chair: Ritoban Basu</i>
1:45 PM - 3:00 PM	Discussion