The Magnificent CEvNS

A workshop exploring coherent elastic neutrino-nucleus scattering

November 2-3, 2018
Physics Research Center
University of Chicago
Chicago, IL USA

http://kicp-workshops.uchicago.edu/2018-CEvNS/

WORKSHOP PROGRAM

With the observation of coherent elastic neutrino-nucleus scattering (CEvNS, pronounced "sevens") now realized, there is a groundswell of efforts in and around the process. This workshop will bring together theorists, phenomenologists, and experimentalists from the CEvNS community with the goal of exploring upcoming experiments, the complementarity between them, and the broad range of physics questions that CEvNS can address. The current landscape of ongoing or potential CEvNS experiments will be surveyed, and discussion will be fostered about the physics topics that can be most powerfully or uniquely addressed by this process. By bringing together theory and experiment workers at this exciting moment, we hope to enrich the exchanges within the CEvNS community, with the goal of defining and guiding future common efforts that maximize the physics impact of this process.

The workshop will be co-hosted by the Enrico Fermi Institute (EFI) and the Kavli Institute for Cosmological Physics (KICP), and will take place on the University of Chicago campus at the newly renovated Physics Research Center (PRC), home of the EFI.

Organizing Committee

Juan Collar
University of Chicago

Grayson Rich
UChicago

Louis Strigari
Texas A&M

Friday - November 2, 2018

7:30 AM - 8:00 AM	Breakfast
	MORNING SESSION ***Chair: Grayson Rich***
8:00 AM - 8:05 AM	**Grayson Rich**, UChicago ***Welcome***
8:05 AM - 8:20 AM	**Alexey Konovalov**, MEPhI & ITEP ***Discrepancies in the published expressions for the CEvNS cross section***
8:20 AM - 8:40 AM	**Jayden Newstead**, Arizona State University ***Revisiting the axial contribution to CEvNS***
8:40 AM - 8:55 AM	**Jon Engel**, University of North Carolina at Chapel Hill ***Odd nuclei and g_A in CEvNS***
8:55 AM - 9:15 AM	**Dmitry Naumov**, Joint Institute for Nuclear Research ***Coherency and incoherency in neutrino-nucleus elastic and inelastic scattering***
9:15 AM - 9:30 AM	**Gleb Sinev**, Duke University ***Constraining NSI with Multiple Targets***
9:30 AM - 9:50 AM	Coffee Break
9:50 AM - 10:10 AM	**Diego Aristizabal**, USM, Chile ***Constraints on neutrino generalized interactions from COHERENT data***
10:10 AM - 10:30 AM	**Danny Marfatia**, University of Hawaii ***TBA***
10:30 AM - 10:50 AM	**Bhaskar Dutta**, Texas A&M ***Model building and connections to charged current experiments***
11:00 AM - 12:00 PM	**Louis Strigari**, Texas A&M ***Astrophysical Applications of Coherent Neutrino Scattering***
12:00 PM - 1:30 PM	Lunch
	AFTERNOON SESSION

1:30 PM - 1:50 PM	**Maxim Pospelov**, University of Victoria and Perimeter Institute for Theoretical Physics ***TBD***
1:50 PM - 2:10 PM	**Tien-Tien Yu**, University of Oregon ***sub-GeV Dark Matter Theory***
2:10 PM - 2:30 PM	**Pedro Machado**, Fermilab ***CEvNS in dark matter experiments***
2:30 PM - 2:50 PM	**Rafael Lang**, Purdue University ***CEvNS in the 2020s with Direct Detection Experiments***
2:50 PM - 3:10 PM	**Shu Liao**, Texas A&M University ***Resolving CP degeneracy using atmospheric neutrino at dark matter detector***
3:10 PM - 3:30 PM	**James Dent**, Sam Houston State University ***The Migdal Effect, neutrino floor, and Bremsstrahlung in CEvNS***
3:30 PM - 4:00 PM	Coffee Break
4:00 PM - 4:30 PM	**Jason Newby**, Oak Ridge National Laboratory ***Neutrinos at ORNL***
4:30 PM - 4:50 PM	**Samuel C Hedges**, Duke University ***The COHERENT NaI[Tl] Detector***
4:50 PM - 5:10 PM	**Manfred Lindner**, Max-Planck-Institut fuer Kernphysik ***The CONUS Coherent Reactor Neutrino Scattering Experiment***
5:10 PM - 5:30 PM	**Juan Estrada**, fermilab ***CONNIE***
5:30 PM - 5:50 PM	**Rupak Mahapatra**, Texas A&M University ***Status and Plans for the MINER Experiment***
5:50 PM - 6:10 PM	**Juan I. Collar**, University of Chicago ***Precision measurement of CEvNS (Ge PPCs @ COHERENT)***
7:30 PM - 9:00 AM	Dinner Cedar's Mediterranean Kitchen

Saturday - November 3, 2018

7:30 AM - 8:00 AM	Breakfast
	MORNING SESSION ***Chair: Louis Strigari***
8:00 AM - 8:20 AM	**Ivan Martinez-Soler**, Northwestern University ***New constraints on the matter potential from global analysis of oscillation data***
8:20 AM - 8:40 AM	**Stefano Gariazzo**, IFIC - CSIC/Univ. Valencia ***Light sterile neutrinos: the 2018 status***
8:40 AM - 9:00 AM	**Joel W Walker**, Sam Houston State University ***Complementarity Short-Baseline Neutrino Oscillation Searches with CEvNS***
9:00 AM - 9:20 AM	**Patrick Huber**, Virginia Tech ***Reactor fluxes and monitoring***
9:20 AM - 9:40 AM	**Bernadette K Cogswell**, University of Manchester ***Exploring New Roles for CEvNS and Neutrinos***
9:40 AM - 10:10 AM	Coffee Break
10:10 AM - 10:30 AM	**Raimund Strauss**, Technical University of Munich ***NU-CLEUS: exploring coherent neutrino-nucleus scattering at low energies***
10:30 AM - 10:50 AM	**Victoria Wagner**, CEA-Saclay, DRF/Irfu, ***The Very Near Site at Chooz - a New Exerimental Hall to Study CENNS***
10:50 AM - 11:10 AM	**Joseph Formaggio**, MIT ***The Ricochet Experiment***
11:10 AM - 11:30 AM	**Dimitri Misiak**, IPNL ***The CryoCube detector array for Ricochet***
11:30 AM - 11:50 AM	**Marco Vignati**, INFN - Roma ***BULLKID - Bulky and low-threshold kinetic inductance detectors***
11:50 AM - 12:10 PM	**Javier Tiffenberg**, Fermilab ***Towards 10kg Skipper detectors***
12:10 PM - 1:30 PM	Lunch

AFTERNOON SESSION
Chair: Grayson Rich

1:30 PM - 1:50 PM	**Kate Scholberg**, Duke University ***The CEvNS Glow from a Supernova***
1:50 PM - 2:10 PM	**Kelly Patton**, University of Washington ***CEvNS as a Probe of Nuclear Neutron Form Factors***
2:10 PM - 2:30 PM	**Omar Miranda**, Depto de Fisica Cinvestav ***future sensitivity of Cevns to a weak mixing angle***
2:30 PM - 2:50 PM	**Dimitrios Papoulias**, NCSR Demokritos ***Neutrino constraints on conventional and exotic CEvNS interactions***
2:50 PM - 3:10 PM	**Baha Balantekin**, University of Wisconsin-Madison ***Aspects of Elastic Scattering of Neutrinos***
3:10 PM - 3:40 PM	Coffee Break
3:40 PM - 3:55 PM	**Rex Tayloe**, Indiana U. ***Measurement of CEvNS with LAr***
3:55 PM - 4:10 PM	**Jacob Zettlemoyer**, Indiana University ***Status of COHERENT LAr***
4:10 PM - 4:30 PM	**Marie Vidal**, Queen's University ***Spherical proportional counters and their application for CEnNS detection***
4:30 PM - 4:50 PM	**Eric Dahl**, Northwestern University ***Progress on liquid-noble bubble chambers for CEvNS***
4:50 PM - 5:10 PM	**David Caratelli**, Fermilab ***LArCADe: lowering thresholds in LArTPC detectors***
5:10 PM - 5:30 PM	**Sergey V. Pereverzev**, LLNL ***Dark side of the exciton: self-organized criticality and low energy threshold detectors***