Precision Measurements working group

August 11, 2020, 1:30 pm – 3:00 pm (EDT)

- Precision measurements WG covers a broad range of scientific topic/techniques from testing the Standard Model to nuclear structure and astrophysics.
- 10 short presentations and in average 55 participants
- Measurements are done both National and University Laboratories.

- The Beryllium electron-capture with superconducting tunnel junctions (BeEST) detector searches for beyond the Standard Model keV level neutrinos.
- Search for nuclear excitation via electron capture (NEEC) at TITAN/TRIUMF is under development.
- Phase imaging ion-cyclotron-resonance technique is used at CPT/ANL to address masses of astrophysical r-process nuclei around rare-earth peaks.
- Construction of the $N = 126$ factory at ANL is ongoing to address the heaviest r-process peak as well as rare-earths.
- Beta-decay Paul trap (BPT) looks for exotic interaction (tensor) in the weak nucleon decay through the beta-neutrion correlation measurements.
- Ne beta-neutrino correlation measurement is under development to search for exotic interaction in the weak nucleon decay.
- Collinear resonance laser ionization spectroscopy (CRIS) is under development at BECOLA/FRIB to address nuclear structures and to aid fundamental symmetries tests.
- Development is underway to address CP violation using Polyatomic molecules with enhanced sensitivity.
- CP-violation in positronium decay will be searched using Polarimenter at FRIB. Development is under way.
- Tagging Xe double beta decay daughter Ba is under development to enhance detection sensitivity for measuring the neutrino-less double beta decay.

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- Precision measurements WG agenda

Start time (EDT)	Presenter	Institution	Subject
13:30	Kyle Leach	Colorado School of Mines	BeEST
13:39	Jon Ringuette	Colorado School of Mines	Nuclear excitation via electron capture (NEEC) at TITAN
13:48	Ray Dwaipayan	University of Manitoba	Recent results from CPT
13:57	Adrian Valverde	University of Manitoba/ANL	Status of the N=126 factory
14:06	Luis Varriano	University of Chicago	Recent results from BPT
14:15	Hitesh Rahangdale	Hebrew University of Jerusalem	Neon isotope beta-neutrino correlation coefficient measurements using "The spectrometer"
14:24	Ronald Fernando Garcia Ruiz	MIT	Laser spectroscopy at FRIB
14:33	Nick Hutzler	CalTech	Precision Measurements with Polyatomic Molecules
14:42	Tom-Erik Haugen	FRIB	CP-violation in positronium decay
14:51	Liang Yang	UCSD	Feasibility study of tagging Xe double beta decay daughter Ba
15:00	End		