Contribution ID: **87** Type: **not specified**

Scintillating Bubble Chambers for WIMP and CENNS Detection

Saturday, 14 October 2017 08:55 (15 minutes)

We recently demonstrated the world's first scintillating bubble chamber, observing simultaneous scintillation and bubble nucleation by nuclear recoils in superheated liquid xenon. No gamma induced bubble nucleation was observed above the background level down to <=1 keV threshold, establishing unmatched electron recoil rejection, orders of magnitude improvement upon the previous best detectors. We found that the Seitz model is still a valid approximation to the detector response to nuclear recoils. Detailed characterization of nuclear-recoil response is currently underway. Scintillating bubble chambers as demonstrated have great potential for WIMP dark matter search or detection of coherent elastic scattering of reactor neutrinos.

Primary authors: Dr DAHL, Eric (Northwestern University); Dr ZHANG, Jianjie (Northwestern University)

Presenter: Dr ZHANG, Jianjie (Northwestern University)

Session Classification: Cryogenic Technologies VII

Track Classification: Noble Liquids