Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Ultra-low Background of XENON1T Dark Matter Search Experiment TIANYU ZHU, Columbia Univ — The XENON1T is currently the most sensitive dark matter search experiment, giving a minimum limit of $7.7 \times 10^{-47}\ cm^2$ for $35 - GeV/c^2$ WIMPs at 90% confidence level from its 34.2 days of data in the first science run. The success of XENON1T experiment is benefiting from the largest target mass for dark matter search and an ultra-low background in the low energy region down to 0.2 events/ton/keVee. This is achieved by continuous online cryogenic distillation of krypton level in LXe down to sub-ppt level. Since then, Rn222 becomes the dominating background for electronic recoils with a concentration of 10uBq/kg and more than 230 days of dark matter search data was accumulated after the first science run. In this talk, I will talk about how to understand each background components in the detector and how they affect dark matter searches.

Tianyu Zhu
Columbia Univ

Date submitted: 16 Jan 2018 Electronic form version 1.4