Contribution ID: **1336** Type: **DM**

Etching Plastic Searches for Dark Matter

Wednesday 26 May 2021 15:15 (15 minutes)

Large panels of etched plastic, situated aboard the Skylab Space Station and inside the Ohya quarry near Tokyo, have been used to set limits on fluxes of cosmogenic particles. These plastic particle track detectors also provide the best sensitivity for some heavy dark matter that interacts strongly with nuclei. We revisit prior dark matter bounds from Skylab, and incorporate geometry-dependent thresholds, a halo velocity distribution, and a complete accounting of observed through-going particle fluxes. These considerations reduce the Skylab bound's mass range by a few orders of magnitude. However, a new analysis of Ohya data covers a portion of the prior Skylab bound, and excludes dark matter masses up to the Planck mass. Prospects for future etched plastic dark matter searches are discussed.

Summary

Primary author: BHOONAH, Amit

Co-authors: SONG, Ningqiang (Queen's University); BRAMANTE, Joseph (Queen's University & Perimeter Institute); Mr COURTMAN, Brian (Queen's University)

Presenter: BHOONAH, Amit

Session Classification: DM V