Contribution ID: **122** Type: **Oral Presentations**

Progress on a novel coextruded high-voltage feedthrough concept for DarkSide-20k

Wednesday, 6 September 2023 17:20 (20 minutes)

As noble liquid time projection chambers get larger, so does the high voltage (HV) requirements required to maintain strong electric drift fields. HV feedthrough (FT) designs become increasingly complex given limitations imposed by cryogenic temperatures, HV, and cryostat geometry. In this talk, progress on a novel HV FT using a coextruded multi-layered coaxial cable is presented for DarkSide-20k, emphasizing design considerations implemented to the unique, fully-plastic cable construction.

DarkSide-20k is a 49.7 ton active volume dual-phase underground argon time projection chamber (TPC) that will perform the search for dark matter reaching the sensitivity 4.9e10-48cm2 with for 90% C.L. exclusion for a 1TeV/c2 over a 10yr run.

Primary author: ERJAVEC, Tyler (University of California Davis)

Co-authors: Dr ZHU, Tianyu (University of California Davis); Prof. PANTIC, Emilija (University of California Davis); Prof. WANG, Hanguo (UCLA)

Presenter: ERJAVEC, Tyler (University of California Davis)

Session Classification: E4