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DRACuLA : Detector irRAdiation Cryogenic faciLity for Astrophysics

Future space missions and balloon borne experiments require high sensitivity cryogenic detectors. New technologies are currently under development and there is a need to reach a maturity level of TRL6. Therefore, among other requirements, it is mandatory to characterize their particle hits susceptibility. With this aim, IAS has designed a state-of-the-art cryogenic facility (DRACuLA) to expose cryogenic detectors to high energetic particles at their operating temperatures (20 mK to 800 mK) by coupling this cryostat to particle accelerators. This structure has been entirely customized to ease the transportation through a compact frame and wheels, and features enabling a complete characterization of the detectors. Since 2022, three irradiation campaigns at two different particle accelerators have already been successfully led on bolometers, TES and KIDs allowing to demonstrate an excellent thermal stability during irradiation and resulting in great glitches analysis and aging simulation with this unique cryogenic facility.

Title

Topic

Cryogenics and quantum sensors

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