

PRISMA+ Colloquium

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None

Matteo Alfonsi
Institut für Physik, ETAP

The low energy electronic recoil excess in the XENON1T experiment

The XENON1T experiment has recently reported new results from the analysis of low energy electronic recoils data, characterized by the lowest background rate ever achieved in the energy range between 1 and 30 keV. An excess over known background has been observed around 2-3 keV, and this observation has been interpreted in terms of the existence of solar axions, or as an enhancement of the neutrino magnetic moment observed in solar neutrinos, or as an additional background initially not considered. In the latter hypothesis, among the various possibilities considered such as traces of ^{127}Xe or ^{37}Ar or tritium diluted into the active volume, only the tritium hypothesis cannot be confirmed or excluded with the current knowledge of the production and reduction mechanism. In this seminar I will describe the detector operation, the analysis approach and the arguments that allowed us to arrive to such conclusions, trying to address also the additional questions that has been posed by the community.