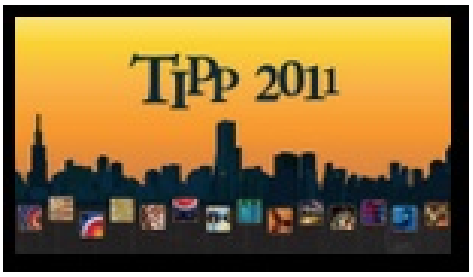

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Germanium Detectors for Dark Matter Searches

Monday 13 June 2011 15:10 (20 minutes)

Germanium detectors operated at temperatures of about 30 mK are commonly used for direct dark matter searches, in experiments such as CDMS or Edelweiss. Over the past decade, these detectors played a crucial role in improving the sensitivity of the searches for Weakly Interacting Massive Particles. Recent detector design modifications have significantly improved the efficiency with which these detectors can identify and reject electromagnetic backgrounds. Additional studies are being conducted to establish the crystalline structure and purity levels required for successful operation of germanium-based detectors. Such studies indicate the possibility of significantly increasing the size of individual germanium detectors, thereby simplifying their design and reducing their cost. I will review the current status of the germanium-based dark matter detector technology, and I will discuss the prospects of using it for developing a ton-scale dark matter experiment.

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