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Two neutrino double electron capture measurement using pixel detectors

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The TGV collaboration has been investigating the applicability of pixel detectors in the detection of two neutrino double electron capture (2νEC/EC) in ^{106}Cd. Pixel detector gives spatial information along with energy of the particle, thus helps to identify and remove the background signals. The collaboration has proposed a Silicon Pixel Telescope (SPT) for the next generation experiment; where a pair of Si pixel detectors with enriched Cd foil in the middle forms the detection unit. Prototype units of SPTs (using 0.5 and 1 mm Si sensors) were recently fabricated and installed in the LSM underground laboratory, France. A detailed account of the SPT setup and preliminary results from background measurements will be presented.

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