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Precision radiation detectors for cutting edge research projects developed at the MPS Semiconductor Lab (12' + 3')

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Max Planck Society Semiconductor Laboratory is actively pushing present scientific frontiers by providing sensors for the cutting edge research projects. Main focus of the Lab is the development of commercially not available silicon sensors for different scientific projects. The sensor technology of the Lab is specially adapted to the requirements of semiconductor radiation detectors providing the ability to build wafer size defect free double sided detectors on the ultrapure silicon. Three device types developed at our Lab will be described (pnCCDs, DEPFETs, SiPMs). Examples of developed and planned detector systems will be given for some selected applications: High energy particle physics (BELLE II, ILC), Astrophysics (eROSITA, BepiColombo and ATHENA), synchrotron beamline instrumentation (LCLS, XFEL). Future perspectives of mentioned sensor concepts will be outlined.

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