

# **Miniature low energy electron detector LEED for radiation environment studies**

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We present a miniature particle monitor for space – Low Energy Electron Detector LEED. The instrument is based on the Si microstrip MYTHEN detector made in PSI for the synchrotron X-ray detection. Its version for space is designed to detect low energy electrons in the planetary radiation belts and for monitoring of the Interplanetary Space Weather. LEED will perform measurements of electrons in the energy range from few up to few hundred keV with energy resolution of several keV. The detector is characterised by very high counting rate ability of up to 1.4 million counts per second per strip and a miniature, radiation hard ASIC read-out chip serving for 128 detection channels. Other features are very small size and weight as well as minimum power consumption. This makes LEED also very beneficial for radiation detection at remote locations like nearby of the other planets of the solar system. To date, a demonstration model of the monitor was tested using radioactive sources and its space worthiness was verified. In addition, the full computer model of the detector was constructed and its response was highly optimised. First implementation of the detector in space is foreseen onboard of the AlphaSat as part of the General Spacecraft Environment Monitor.