Development of a large-area, light-weight module using the MALTA monolithic pixel detector


The goal for MALTA is to develop a radiation hard large-area DMAPS with high-granularity and ~1ns timing precision produced with an industrial standard CMOS process (180nm Towerjazz) for environments such as the outer layers of the ATLAS ITK.

The MALTA detector family

The design of this module is completed. It will be assembled on an ultra light-weight flex circuit with a thickness of 50μm, contact traces only 17μm wide and a layout that is designed to bond chips face down either using ACF of nano wires.

Further reading on MALTA:
A 1 μΩ radiation-hard front-end in a 0.18 μm CMOS process for the MALTA2 monolithic sensor, F. Piro et al., https://doi.org/10.1109/TNS.2022.3170729