

Adapting the LHC-inspired Medipix2 Pixel Detector Technology
for Other Uses

by

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The CERN-based Medipix2 Collaboration has evolved one of the pixel detector technologies developed for the LHC into a stand-alone device with a large variety of applications. Originally intended for the medical imaging arena, one current version of the technology, known as TimePix, has a 14-bit register in each pixel that can be configured to function as either a Time-Over-Threshold ADC or as a TDC with 10 ns resolution.

The University of Houston has recently become a member of the collaboration, and we are actively working on its application as an active space radiation dosimeter, as well as a device to monitor accelerator therapy beams (HIMAC and M.D. Anderson). Excellent position, angular and energy resolutions have been demonstrated, as well as the ability to function in relatively high rate accelerator beam environments. The current prototype interface is USB-based and both power as well as control and readout can be accomplished for up to 4 of the 1.4 x 1.4 cm 256 x 256 pixel devices through a single standard USB cable. A demonstration of the device will accompany the presentation.