Poster

**Development of Multi-Absorber Transition-Edge Sensors for X-ray Astronomy**

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We are developing multi-absorber Transition-Edge Sensors (TESs) for applications in x-ray astronomy. These position-sensitive devices consist of multiple x-ray absorbers each with a different thermal coupling to a single readout TES. Heat diffusion between the absorbers and the TES gives rise to a characteristic pulse shape corresponding to each absorber element and enables position discrimination. The development of these detectors is motivated by a desire to maximize focal plane array coverage with the fewest number of readout channels. In this contribution we report on results from devices consisting of nine, 65 x 65 $\mu m^2$ Au x-ray absorbers, 5 μm thick. These are coupled to a single 35 x 35 $\mu m^2$ Mo/Au bilayer TES. We present measurements on the energy resolution and position sensitivity in the range 1-8 keV. We use a finite-element model to reproduce the measured pulse shapes and investigate the detector non-linearity with energy. We discuss design optimizations and practical limitations on designing devices with ever increasing numbers of absorbers.