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Ultra-low noise TES bolometers for the US SAFARI contribution

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We are developing ultra-low noise transition edge sensors (TESs) for the SAFARI far-IR spectrograph, part of the cryogenically-cooled SPICA mission now in phase-A study in Europe. The sensitivity target for these devices is a per-pixel noise equivalent power (NEP) below 10^{-19} $\text{WHz}^{-1/2}$. In order to fully characterize these devices, the testing environment requires sufficient suppression of both optical and RF power due to the low saturation power of the detector. Additionally a carefully designed magnetic shield is needed for the frequency domain multiplexing SQUID readout. In this talk we present our approach to a low-background measurement setup, and results in our testing program with the Ti/Au bilayer TES devices. We also briefly present our concept for a full SAFARI focal plane.

Less than 5 years of experience since completion of Ph.D

N

Student (Ph.D., M.Sc. or B.Sc.)

N

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