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## **Poster Session Submission of Abstract**

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Title of the Poster: Large Area Superconducting TES Spiderweb Bolometer for  
CMB Polarisation Measurements for the LSPE balloon borne telescope.

### Abstract Text:

Detecting B-mode polarization at large angular scales of the Cosmic Microwave Background (CMB) is one of the main challenges in modern observational Cosmology. Superconducting TES Bolometers are a suitable detector choice for the  $10^{-17}$  WHz<sup>-1/2</sup> range requirement on NEP.

We present the development status of a large area spider-web bolometer for CMB measurements for the LSPE telescope. The bolometer has a 10-mm diameter suspended  $Si_3N_4$  membrane with a mesh size of 250  $\mu$ m suspended with a thin leg structure. The TES sensor is a Ti/Au bilayer with  $T_C$  tuned in the 500-550 mK range electronically coupled with a Bi/Au microwave absorber. Fine tuning of detector's parameters, heat capacity C and thermal conductivity G, has been made in order to reduce the time constant  $\tau$  of the bolometer.

### Summary:

We present the development status of a large area TES spider-web bolometer for CMB measurements. The bolometer has an 8-mm diameter suspended  $Si_3N_4$  membrane with a mesh size of 250  $\mu$ m. The TES sensor is a Ti/Au bilayer with  $T_C \sim 530$  mK electronically coupled with a Bi/Au absorber. Fine tuning of detector's parameters has been made in order to reduce the time constant  $\tau$  of the detector.

Keywords: TES · Spiderweb · Bolometer · CMB · Cosmology