Mo/Au Bilayer TES Resistive Transition Engineering

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Abstract — We have investigated two types of superconducting Transition Edge Sensors (TES) modified with structures on the surface. One is a Mo/Au TES modified with Nb stripes, which increase the transition temperature and broaden the transition width. Another is a Mo/Au TES modified Au stripes, which decrease the transition temperature and broaden the transition width. It is experimentally demonstrated that the resistive transition profile of a TES can be desirably engineered with a superconductor and/or a normal metal by properly choosing the width and spacing of the modification stripes on the surface.

Keywords (Index Terms) — Superconductivity, proximity effect, transition edge sensor, bolometer.