

Abstract Submitted  
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**Long Range Longitudinal Proximity Effects  
in Superconducting/Normal-Metal Bilayers** JOHN SADLEIR, NASA GSFC  
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STEPHEN SMITH, CAROLINE KILBOURNE, NASA GSFC — Measurements are  
presented of the temperature and magnetic field dependence of critical current measured over 7 orders of magnitude on square Mo/Au bilayers ranging in length from 8 to 290 microns. We find our measurements have a natural explanation in terms of a spatially varying order parameter that is enhanced in proximity of the higher transition temperature superconducting leads (the longitudinal proximity effect) and suppressed in proximity to the added normal metal structures (the lateral inverse proximity effect). We also discuss the implications of our results on transition-edge sensors for high-energy-resolution imaging-spectrometry currently under development at NASA for future space-based X-ray astrophysics observatories.

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