

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Kondo insulator SmB6 under strain: surface dominated conduction near room temperature** ALEX STERN, UCI, MAXIM DZERO, Kent State University, VICTOR GALITSKI, University of Maryland, ZACH FISK, JING XIA, University of California Irvine — SmB6 is a strongly correlated mixed-valence Kondo insulator with a newly discovered surface state, proposed to be of non-trivial topological origin. However, the surface state dominates electrical conduction only below  $T^*=4$  K limiting its scientific investigation and device application. Here, we report the enhancement of  $T^*$  in SmB6 under the application of tensile strain. With 0.7% tensile strain we report surface dominated conduction at up to a temperature of 240 K, persisting even after the strain has been removed. This can be explained in the framework of strain-tuned temporal and spatial fluctuations of f-electron configurations, which might be generally applied to other mixed-valence materials. We note that this amount of strain can be induced in epitaxial SmB6 films via substrate in potential device applications.

Alex Stern  
University of California Irvine

Date submitted: 11 Nov 2016

Electronic form version 1.4