

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**A new approach to measure spatially resolved thermovoltage**  
KAI SOTTHEWES, MARTIN SIEKMAN, HAROLD ZANDVLIET, University of Twente — We have recorded spatial maps of the thermovoltage of a Au(111) surface with a scanning tunneling microscope using a novel approach. The novel approach relies a method were we record quasisimultaneously the normal topography as well as the thermovoltage by switching the feedback and sample bias on and off. The thermovoltage, which arises from a temperature difference between scanning tunneling microscope tip and sample, is very sensitive to small variations of the local electronic density of states in vicinity of the Fermi level. Near step edges and defects we have observed well-defined Friedel oscillations.

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Date submitted: 06 Nov 2015

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