

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**Hidden order to antiferromagnetic transition in URu<sub>2</sub>Si<sub>2</sub>** JESSE HALL, MAHSA RAHIMI MOVASSAGH, MURRAY WILSON, GRAEME LUKE<sup>1</sup>, McMaster University, NORAVEE KANCHANAVATEE, KEVIN HUANG<sup>2</sup>, MARC JANOSCHEK<sup>3</sup>, M. BRIAN MAPLE, University of California San Diego, TOM TIMUSK<sup>4</sup>, McMaster University — The second-order phase transition in the heavy fermion compound URu<sub>2</sub>Si<sub>2</sub> continues to confound efforts to reveal its true nature, and bears the moniker "hidden order" with good reason. While the order parameter remains mysterious, antiferromagnetism is easily induced with modest chemical substitution. The proximity of these two phases offers tantalizing clues about the nature of the hidden order phase. We present data on the antiferromagnetic phase, revealing the similarities and the differences between the two phases, including evidence for effects above the transition temperature. The implications of these findings for the hidden order parameter will be discussed.

<sup>1</sup>Alternate affiliation: Canadian Institute for Advanced Research

<sup>2</sup>Present address: State Key Laboratory of Surface Physics, Department of Physics, Fudan University, Shanghai 200433, China

<sup>3</sup>Present address: MPA-CMMS, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA

<sup>4</sup>Alternate affiliation: Canadian Institute for Advanced Research

Jesse Hall  
McMaster University

Date submitted: 06 Nov 2015

Electronic form version 1.4