Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Collinear Magnetic Order in an Isotropic Triangular Antiferromagnet: The Sn/Si(111) Surface System GANG LI, Institut für Theoretische Physik und Astrophysik, Universität Würzburg, 97074 Würzburg, Germany, PHILIPP HÖPFNER, JÖRG SCHÄFER, RALPH CLAESSEN, Physikalisches Institut, Universität Würzburg, 97074 Würzburg, Germany, WERNER HANKE, Institut für Theoretische Physik und Astrophysik, Universität Würzburg, 97074 Würzburg, Germany — The one-electron spectral function is the key quantity to extract detailed information on the complex spin pattern in a frustrated magnetic system. This is demonstrated here by a detailed comparison of theory, which combines a priori density-functional (LDA) with cluster many-body (LDA + DCA) calculations, with high-precision angle-resolved photoelectron spectroscopy (ARPES). The role model in this work is the isotropic triangular antiferromagnetic Sn/Si(111). Its geometric frustration and strong electronic correlations are shown at low temperatures to combine to an unexpected magnetic, i.e. collinear order, and not the possible spiral (120°) antiferromagnetic order or a disordered spin-liquid phase.

Gang Li
Institut für Theoretische Physik und Astrophysik,
Universität Würzburg, 97074 Würzburg, Germany

Date submitted: 26 Nov 2012 Electronic form version 1.4