Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Momentum-Dependent Ultrafast Quasiparticle Dynamics in Optimally-Doped Bi-2212 Monitored with Time-Resolved ARPES GEORGI DAKOVSKI, Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park CA, TOMASZ DURAKIEWICZ, Condensed Matter and Magnet Science, Materials Physics and Applications Division, Los Alamos National Laboratory, Los Alamos NM, JIAN-XIN ZHU, Physics of Condensed Matter and Complex Systems, Theoretical Division, Los Alamos National Laboratory, Los Alamos NM, PETER RISEBOROUGH, Department of Physics, Temple University - Philadelphia PA, GENDA GU, Condensed Matter Physics & Materials Science, Brookhaven National Laboratory, Upton NY, STEVE GILBERTSON, GEORGE RODRIGUEZ, Center for Integrated Nanotechnologies, Materials Physics and Applications Division, Los Alamos National Laboratory, Los Alamos NM — We have employed the novel technique of time- and angle-resolved photoelectron spectroscopy (t-ARPES) to investigate the quasiparticle dynamics in photoexcited, optimally-doped Bi2Sr2CaCu2O8 superconductor across the superconductor-metal transition. In this talk, we will present and analyze the substantially different ultrafast dynamics, tracked in momentum-dependent fashion, by probing the nodal and antinodal regions of the Brillouin zone, on a 35 femtosecond timescale. The consequences of these findings in terms of reentrant superconductivity will be discussed.

Georgi Dakovski
Linac Coherent Light Source,
SLAC National Accelerator Laboratory, Menlo Park CA

Date submitted: 20 Nov 2011 Electronic form version 1.4