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Anisotropic quasiparticle scattering in overdoped La-based cuprate superconductors: An angle resolved photoemission study JOHAN CHANG, EPFL Lausanne and Paul Scherrer Institut, Switzerland, MARTIN MAANSSON, YASMINE SASSA, CHRISTIAN MATT, ETH Zurich, Switzerland, OLOF GOTBERG, OSCAR TJERNBERG, KTH, Sweden, STEFAN PAILHES, University of Lyon, France, OLIVER LIPSCOMPE, STEPHEN HAYDEN, Bristol University, UK, MING SHI, LUC PATTHEY, Swiss light source, Paul Scherrer Institut, Switzerland, JOEL MESOT, EPFL Lausanne and Paul Scherrer Institut, Switzerland — High-temperature superconductivity remains one of the outstanding unresolved problems of condensed matter physics. In the cuprate superconductors, a central part of the problem is to understand the unusual normal state properties. Here we present a new angle resolved photoemission spectroscopy (ARPES) study on the normal state of overdoped La-based cuprates. The pseudogap phase is found to vanish in a quantum critical point x_c inside the superconducting dome. Momentum dependent quasiparticle scattering have been studied for doping concentrations larger than x_c. Comparison to angle-integrated bulk probes such as electrical transport measurements will be made.

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