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Spin-charge interplay in antiferromagnetic LSCO studied by the muons, neutrons, and ARPES techniques GIL DRACHUCK, Technion - Israel Institute of Technology, ELIA RAZZOLI, University de Fribourg, Switzerland, GALINA BAZALITSKI, AMIT KANIGEL, Technion - Israel Institute of Technology, CHRISTOF NIEDERMAYER, MING SHI, Paul Scherrer Institute, Switzerland, AMIT KEREN, Technion - Israel Institute of Technology — We performed temperature dependent angle resolved photo emission spectroscopy (ARPES) measurements on an antiferromagnetic (AFM) LSCO sample with $x = 1.92\%$. We find: quasiparticle peaks, Fermi surface, antinodal gap, and below 45 K a nodal gap. Muon spin rotation measurements ensures that the sample is AFM and that the doping is close, but below, the spin glass phase boundary. In addition, we performed elastic neutron scattering measurements on the same sample, and determined the thermal evolution of the commensurate and incommensurate magnetic order. Our major finding is that nodal gap opens at a temperature well below the commensurate ordering at 140 K, and close to the incommensurate ordering temperature of 30 K.

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