The understanding of the electron-doped cuprates is essential for a universal picture of high-temperature superconductivity. In order to reach this goal, it is crucial to solve the main mystery that holds since the discovery of these materials: why superconductivity is achieved only when a tiny amount of oxygen is removed in the as-grown samples during a post-annealing process (reduction). To solve this issue, we used the PGM beamline of SRC to perform a systematic ARPES study of as-grown and reduced samples.

Figure 1: a) and b) ARPES spectra obtained corresponding to the k-location given by a thick line in the inset of panel a, in which the thinsolid, the dashed and the dashed and dotted line correspond to the original band, antiferromagnetic induced folded band and Brillouin zone boundary, respectively. The solid and dashed arrows refer to features associated with the original and AIF bands, respectively. c) and d) EDC obtained along the nodal direction.

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