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Nodeless superconducting gap in $K_xFe_{2-y}Se_2$ and its evolution with doping probed from angle-resolved photoemission MIN XU, YAN ZHANG, FEI CHEN, QINGQIN GE, Department of Physics, Fudan University, China, YI YU, AIFENG WANG, CHANGJIN ZHANG, XIANHUI CHEN, Hefei National Laboratory for Physical Science at Microscale and Department of Physics, University of Science and Technology of China, DONGLAI FENG, Department of Physics, Fudan University, China — The nodeless superconducting gap has been observed on the large Fermi pockets around the zone corner in $K_xFe_{2-y}Se_2$, whether its pairing symmetry is s wave or nodeless d wave is still under intense debate. Here we report an isotropic superconducting gap distribution on the small electron Fermi pocket around the Z point in $K_xFe_{2-y}Se_2$, which favors the s-wave pairing symmetry [1-3]. At the same time, we will present some of the recent data on the evolution of the band structure and superconducting gap of iron chalcogenides $K_xFe_{2-y}Se_2$ as a function of electron and hole doping.

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