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Electric transport properties in FeSe0.3Te0.7 / Au c-axis tunneling junctions YU TIEN SHEN, YOU SHENG LI, CHENG CHUNG CHI, None, DEPARTMENT OF PHYSICS, NATIONAL TSING HUA UNIVERSITY TEAM — Currently favored pairing symmetry in the iron-based superconductor is the nodaless S+- wave. Based on this theory, the conductance spectra of the normal metal to superconductor tunneling junctions do not exhibit ZBCP. We report the fabrication and the transport properties of c-axis tunneling junctions formed by FeSe0.3Te0.7 (FeSeTe) and Au. When FeSeTe is in its normal state, the conductance spectrum shows a V-shape background; while when FeSeTe becomes superconducting, the conductance spectrum shows some remarkable features: First, a pronounced ZBCP was obtained as temperature is just below Tc, and when the temperature was further decreased to below 4K, a clear double peak structure appears; Second, there were two dip structures at around 4 and 20mV. We found out that there is a linear dependence of the voltage difference between the double peaks versus applied field. Though the origin of the ZBCP, the double peak structure, and the dip structures were unclear and still under investigation, we believe that they all related to the superconducting gaps due to their dependence on applied magnetic fields and temperature. The existence of the prominent ZBCP is not consistent with the proposed S+- wave symmetry of the superconducting gap.

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None

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