

Abstract Submitted
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Controlling superconductivity at the FeSe/SrTiO3 interface by interfacial electron density¹ WEIWEI ZHAO, Pennsylvania State University, CUI-ZU CHANG, MIT, JUE JIANG, Pennsylvania State University, JAGADEESH MOODERA, MIT, MOSES CHAN, Pennsylvania State University — Single layer iron selenide (FeSe) on SrTiO3 substrate with a possible superconducting transition temperature (T_c) above 100K has attracted a great deal of attention recently. An important outstanding puzzle in this system is the inconsistency in T_c as measured by different techniques. Here we systematically study the dependence of T_c on the electron carrier density in this system and found that T_c can be most effectively enhanced by increasing the density of electron carriers directly at the FeSe/SrTiO3 interface. We believe that our result resolves some of the puzzles in previous experiments, and open the possibility for further enhancement of T_c in this system even when taken outside the UHV chamber.

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