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ARPES of single layer iron pnictide on STO.

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Quantum systems in confined geometries have been a very rich ground for discoveries. In this talk, I will discuss recent progresses in uncovering novel physics at ultra-thin limit, with focus on mono-unit-cell (UC) superconductor FeSe grown on SrTiO3, where the Cooper pairing temperature is reported to have dramatically enhanced from its bulk value of 8K to ˜60K. Of interest are the cause of the enhanced pairing strength, and the nature of the superconducting state. We show angle-resolved photoemission spectroscopy (ARPES) data that provide clear evidence for strong cross-interface electron-phonon coupling in single UC limit, suggesting that pairing is significantly enhanced by the strong interface mode coupling. We will also show other results on the nature of the superconducting state in this system. [References: JJ Lee et al., Nature 515, 245 (2014)].