

Abstract Submitted
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Magnetoelectric coupling in superconducting Sr₂VO₃FeAs revealed by scanning tunneling microscopy SEOKHWAN CHOI, HYUNWOO CHOI, HYUN-JUNG LEE, JIN-OH JUNG, DONGHYUN SON, Department of Physics, KAIST, Daejeon 305-701, Korea, JUN SUNG KIM, JONG MOK OK, Department of Physics, POSTECH, Pohang 790-784, Korea, JHINHWAN LEE, Department of Physics, KAIST, Daejeon 305-701, Korea — Sr₂VO₃FeAs is known to exhibit high T_c (~ 37 K) superconductivity with no magnetic ordering in the FeAs layer but weak magnetic moment in the V sublattice. An angle resolved photo emission spectroscopy also shows the non-trivial Fermi surface due to the V 3d orbitals. We have studied on Sr₂VO₃FeAs single crystal using spectroscopic imaging scanning tunneling microscopy (SI-STM) with variable temperature from 4.6K to 100K, and magnetic field up to 7T. Our results show that Sr₂VO₃FeAs has charge density wave (CDW) modulation in the V sublattice with the same wave vector observed in the neutron scattering experiment. The modulation strength is reduced with applying magnetic field. An electronic Fermi surface with largest V 3d character shows suppressed superconductivity possibly due to strong V-site correlation. However the multi-orbital nature of FeAs allows overall unsuppressed superconductivity at high T_c.

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