

Abstract Submitted
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Development of Micro-Four-Point Probe Compatible with an Scanning Tunneling Microscope CANHUA LIU, Shanghai Jiao Tong Univ —

As miniaturization of electronic devices goes on, while more attention has to be paid to the influence of the existence of surfaces and interfaces on the electric and/or magnetic properties of the electronic materials, some researchers have proposed to use the intrinsic surface properties for the development of future devices. On the other side, the existence of crystal surface and interface may reduce the spatial degrees of freedom of the carriers, and thus results in various novel quantum phenomena related to the reduction of dimensionality. It is highly desirable to obtain the electronic structure, morphology information and transport property of a material in situ, since they are strongly related. Based on a commercial apparatus equipped with STM and MBE systems, we developed an electronic transport measurement system that is compatible with the STM. A micro-four-point probe (MFPP) is utilized to increase the surface sensitivity in the transport measurement, which can be conducted at low temperature ($T_{\min}=1$ K) and high magnetic field ($B_{\max}=11$ T). With this system, we succeeded in detecting superconductivity above 100 K in a single unit-cell layer of FeSe film grown on an Nb-doped strontium titanate.

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