Abstract Submitted
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Electrical resistivity of single crystals of CaFeAsO under applied pressure[1] BO GAO, Center for High Pressure Science Technology Advanced Reserch, YONGHUI MA, GANG MU, TAO HU, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, HONG XIAO, Center for High Pressure Science Technology Advanced Reserch — Flouroarsenide CaFeAsF is a 1111-type of iron-based superconductors parent, similar to the LaFeAsO parent, but being oxygen-free. Various studies to date on the pure and doped CaFeAsF compounds have been conducted on polycrystalline samples. We have carried out high pressure electrical resistivity measurements on single crystals of CaFeAsF parent for the first time. It is observed that the insulating state above the structure transition temperatures is transformed into a metallic under pressures up to ~5 GPa. Furthermore, we found a pressure-induced superconductivity with zero resistivity in CaFeAsF under pressures above 15 GPa. Surprisingly, this pressure-temperature phase diagram of the CaFeAsF single crystals is in contrast with that of LaFeAsO single crystals reported previously where no superconductivity emerges under pressures up to 37 GPa..

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