

Abstract Submitted
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Electron Injection and “Oxygen Effect” in BaFe_2As_2 : Mössbauer Studies AIRAT KHASANOV, University of North Carolina at Asheville, DING HU, XINGYE LU, HUIQIAN LUO, Institute of Physics, Academy of Sciences, Beijing, China, JIANYI JIANG, ERIC HELLSTROM, Florida State University, AMAR NATH, University of North Carolina at Asheville, MATERIALS RESEARCH LAB TEAM, HIGH FIELD LAB TEAM, BEIJING NATIONAL LABORATORY OF CONDENSED MATTER PHYSICS TEAM — It is widely believed that a few percent substitution of Co (with d7) or Ni (with d8) for Fe (with d6) in BaFe_2As_2 results in donation of electrons, killing of magnetism, and thereby induction of superconductivity. We are exploring the possibility of injecting electrons by physico-chemical techniques instead of substitutions. We have also discovered that traces of chemisorbed oxygen can change drastically the magnetic behavior in polycrystalline BaFe_2As_2 at low temperatures. BaFe_2As_2 exhibits considerable hysteresis behavior as well that of thermal history.

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