

Abstract Submitted
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Superconducting properties of S-substituted FeTe¹ YOSHIKAZU MIZUGUCHI, KEITA DEGUCHI, SHUNSUKE TSUDA, TAKAHIDE YAMAGUCHI, YOSHIHIKO TAKANO, National Institute for Materials Science NIMS — Iron-chalcogenide superconductors attract us as the simplest iron-based superconductor. Tetragonal FeSe is a superconductor with a transition temperature $T_c \sim 10$ K. The T_c dramatically increases to 37 K under pressure above 4 GPa. While FeSe exhibits superconductivity without any chemical substitution, FeTe that has a structure analogous to FeSe undergoes magnetic and structural phase transition around 70 K and does not show superconductivity. We found that S substitution for the Te site suppresses the magnetic ordering and induces superconductivity at $T_c \sim 10$ K. Recently we observed a dramatic change of superconducting property for the FeTe_{1-x}S_x sample exposed to the air. Both the T_c and the superconducting volume fraction were enhanced by the air exposure. We will discuss the factor that induces the dramatic change in FeTe_{1-x}S_x.

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