

Abstract Submitted
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Superconductivity in WO_{2.6}F_{0.4} synthesized by reaction of WO₃ with Teflon¹ DAIGOROU HIRAI, ESTEBAN CLIMENT-PASCUAL², ROBERT CAVA, Princeton University — WO_{3-x}F_x ($x < 0.45$) perovskite-like oxyfluorides were prepared by a chemically reducing fluorination route using the polymer polytetrafluoroethylene (Teflon). The symmetry of the crystal structures of WO_{3-x}F_x changes from monoclinic to tetragonal to cubic as the fluorine content increases. Fluorine doping changes insulating WO₃ to a metallic conductor, and superconductivity ($T_c = 0.4$ K) was discovered in the samples with fluorine contents of $0.41 < x < 0.45$. This easy fluorination method may be applicable to other systems and presents an opportunity for finding new oxyfluoride superconductors.

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