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The enhanced high Tc superconductivity by ordering dopant CHANGQING JIN, Q.Q. LIU, W.B. GAO, H. YANG, L.X. YANG, Y. YU, R.C. YU, Institute of Physics, Chinese Academy of Science, China, S. UCHIDA, Department of Physics, University of Tokyo, Japan — We discuss the high pressure improvement on superconducting transition temperature (Tc) related to ordering apical oxygen layer of a high temperature superconductor (HTS). This study became available in the high pressure synthesized $Sr_2CuO_{3+\delta}$ superconductor with K_2NiF_4 structure showing so far rarely formed partially occupied ?apical oxygen? which also act as the dopant of the HTS. The well-defined links between Tc and modulated structures suggests that optimizing the ordering at apical oxygen layer outside CuO2 plane is a promising way to further enhance Tc.

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