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**High Pressure Synthesis of a New 0201 type Oxychloride High Tc Superconductor by “Apical Oxygen Doping”** Q. Q. LIU, X. M. QIN, C. Q. JIN, Institute of Physics, Chinese Academy of Sciences, HIGH PRESSURE RESEARCH TEAM — We present our recent research works on high pressure synthesis of high Tc superconductors in the alkaline earth copper oxychloride system of  $\text{Sr}_2\text{CuO}_2\text{Cl}_2$ , the isostructure compound with  $\text{La}_2\text{CuO}_4$ , where the apical site relative to the [CuO<sub>2</sub>] plane is chlorine rather than the usual oxygen. Using the “apical oxygen doping” mechanism, i.e., partially substituting the oxygen for chlorine, we succeeded in synthesizing a new 0201 type superconductor  $\text{Sr}_2\text{CuO}_{2+\delta}\text{Cl}_{2-x}$ . Nearly single phase of  $\text{Sr}_2\text{CuO}_{2+\delta}\text{Cl}_{2-x}$  superconductors were obtained, showing superconducting transition at 35 K for the as-prepared sample.

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