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Spin-state Transition Associated with the Magnetization Jump on $\mathbf{Y_{1-x}Sr_xCoO_{3-\delta}}$ Compounds (x=0.67, 0.75) M. IZUMI, Y.F. ZHANG, S. SASAKI, Tokyo University of Marine Science and Technology, O. YANAGISAWA, Yuge National College of Maritime Technology — Perovskite-type compounds $Y_{1-x}Sr_xCoO_3$ (x=0.67, 0.75) were prepared by the conventional solid state method and sintered under air and O_2 flow. There is a DC magnetization jump during the field cooling at 0.01 T and then it comes normally back to high temperature in the specimens, which is called as magnetic memory effect. The Co^{3+} ions spin state transition from low to intermediate state results in the magnetization jump. The jump temperature (T_J) and magnetization increase with the x increases. With increasing the magnetic field, the magnetization jump disappears. Air-processed samples exhibit higher T_J and larger magnetization than O_2-processed samples. The main reason is the different content of Co^{3+} ions due to the oxygen deficiency under the different prepared conditions. Samples with x=0.75 show the higher Curie temperature (T_C) and at almost the same temperature the cusp appears in the zero-field curve. At the same time, there is another small cusp in the zero-field curve in x = 0.75 samples.

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