

Abstract Submitted
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Probing the Na atomic order in Na_xCoO_2 , $x=0.67$ and 0.71 by NMR spectroscopy¹ BEN-LI YOUNG, P.-Y. CHU, J.Y. JUANG, Department of Electrophysics, National Chiao Tung University, Taiwan, G.J. SHU, F.-T. HUANG, M.W. CHU, F.C. CHOU, Center for Condensed Matter Sciences, National Taiwan University, Taiwan — The sodium cobaltate Na_xCoO_2 has a layered structure, consisting of alternating triangular CoO_2 and Na planes. Evidences of Na atomic ordering have been reported at certain Na contents by different diffraction experiments. The Co magnetism, strongly influenced by the Na ordering, gives a unique phase diagram in Na_xCoO_2 . In order to investigate the Na ordering and the Co magnetism, we conducted ^{23}Na and ^{59}Co NMR experiments in single crystals Na_xCoO_2 for $x=0.67$ and 0.71 . We found that $\text{Na}_{0.67}\text{CoO}_2$ does not have well-defined Na structural order. However, the oxygen slightly-deficient sample $\text{Na}_{0.67}\text{CoO}_{1.98}$ shows a superstructure, as evidenced by the narrow and well-resolved NMR spectrum. As for $\text{Na}_{0.71}\text{CoO}_2$, Na ordering is also observed. We have tried to solve the Na ordering pattern from our NMR spectra. The results will be discussed and be compared with the existing structural models.

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