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## SUPERCONDUCTIVITY, CHARGE ORDER AND ANOMALOUS MAGNETISM IN Na COBALTATES

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In 2003 superconductivity at 4.5K has been discovered in the watered cobaltate  $\text{Na}_{0.35}\text{CoO}_2 \cdot 1.3\text{H}_2\text{O}$ . This compound has some analogies with the cuprates as the conductivity occurs in the  $\text{CoO}_2$  planes and the electron doping can be modified by changing the Na content. The metallic parent compounds  $\text{Na}_x\text{CoO}_2$  displays a large thermoelectric power presumably of magnetic origin. After a general introduction on these materials, we shall present SQUID, NMR[1] [2] [3] and  $\mu\text{SR}$  data[4] taken on samples synthesized and characterized by X ray crystallography. The  $^{23}\text{Na}$  and  $^{59}\text{Co}$  NMR data allow us to evidence that a charge order establishes for given  $x$  values in these systems and leads to original magnetic properties. The diversity of electronic properties encountered for different  $x$  values demonstrates that cobaltates open a new chapter in the physics of correlated electron systems.

### References:

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