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The origin of the temperature dependence of the magnetic susceptibility and the large thermoelectric power in metallic layered cobaltites IVÁN GONZÁLEZ, Centro de Supercomputación de Galicia, Avda. de Vigo s/n, E-15705 Santiago de Compostela, CAMILO X. QUINTELA, Applied Physics Department, University of Santiago de Compostela, 15782 Santiago de Compostela, Spain, MANUEL BAÑOBRE-LÓPEZ, FRANCISCO RIVADULLA, Physical-Chemistry Department, University of Santiago de Compostela, 15782 Santiago de Compostela, Spain — We perform detailed measurements of the thermoelectric power and the static magnetic susceptibility on metallic Na_xCoO_2 and $\text{Ca}_3\text{Co}_4\text{O}_9$, as representatives of layered Co oxides with a triangular Co-lattice. We propose that the observed large thermoelectric power and the Curie-Weiss temperature dependence of the susceptibility have a common origin related to metallic character of these compounds. Thermoelectric power measurements are compared to Boltzmann transport theory calculations. The Curie-Weiss behaviour of the susceptibility is explained within the framework of the self-consistent renormalization theory for spin fluctuations proposed by Moriya for itinerant magnets. Our results clarify the apparent duality in the localised/itinerant behaviour of the electron spin in these systems and provide a unifying view on the physics of metallic layered cobaltites.

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