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Curie-Weiss metallic state in sodium cobaltates ILYA VEKHTER, Louisiana State University, CHRISTOPHER HOOLEY, University of St Andrews — One of the most intriguing properties of sodium cobaltates, Na_xCoO_2 is the so-called Curie-Weiss metallic phase appearing at relatively high doping, $x \sim 0.7$. It exhibits Curie-Weiss magnetic susceptibility in a metal not far from the onset of antiferromagnetic order. Surprisingly for a layered quasi-two-dimensional structure, the neutron scattering experiments in the ordered state yield comparable in-plane and interplane magnetic exchange constants. We consider a model layered system on the verge of transition to a type-A antiferromagnet. We investigate whether in such a system fluctuations of the in-plane magnetization may give the apparent Curie-Weiss behavior in analogy with the spin-fluctuation theory for itinerant ferromagnets. We consider the effect of the crossover from incoherent to coherent interplane transport on the magnetic susceptibility and discuss the effect of sodium doping.

Ilya Vekhter
Louisiana State University

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