Magnetic behaviour of the $Bi_{2-x}Sr_xIr_2O_7$ pyrochlore CARLOS COSIO-CASTANEDA, GUSTAVO TAVIZON, Fac. de Quimica, PABLO DE LA MORA, Fac. de Ciencias, FRANCISCO MORALES, ROBERTO ESCUDERO, Inst. de Materiales, Universidad Nacional Autonoma de Mexico — Polycrystalline compounds of the $Bi_{2-x}Sr_xIr_2O_7$ solid solution have been synthesized. These compounds were obtained by the solid state reaction method in the $0 < x < 0.9$ range with the $\alpha$-pyrochlore crystal structure. This material was characterized with Crystalline Rietveld refinement and cyclic voltammetry. These analyzes permitted the understanding of the unit-cell modifications and valence states of Iridium as a function of the strontium content. Electrical characterization of samples in the 10-300K range shows a metallic character that remains for the whole solid solution. Magnetically this system behaves as a Curie-Weiss paramagnetic in the 2-300K range. The measured magnetic moment values suggest the presence of $Ir^{5+}$ in some compounds of the solid solution.

Carlos Cosio-Castaneda
Fac. de Quimica, Universidad Nacional Autonoma de Mexico

Date submitted: 09 Dec 2008