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Geometrically frustrated pyrochlores $Bi_{2-y}Sr_yIr_2O_7$, a solid solution with non-large magnetic order CARLOS COSIO CASTAÑEDA, GUSTAVO TAVIZON, F. de Quimica, PABLO DE LA MORA, F. de Ciencias, FRANCISCO MORALES, ROBERTO ESCUDERO, I. Materiales, UNAM — The $Bi_{2-y}Sr_yIr_2O_7$ solid solutions were synthesized by solid state reaction and characterized by Rietveld analysis with x-ray powder diffraction data. DC magnetic susceptibilities of these compounds, which crystallize in α-pyrochlore, were measured in a SQUID magnetometer with an applied magnetic field of 1 kOe. Magnetic analyses indicate that antiferromagnetic interactions between iridium moments are present but no magnetic transition was observed in the range of 2-300K. Unexpectedly, in the high-temperature region, the compounds display a linear temperature dependence that increases with the Sr contents, hence the magnetic susceptibilities are not Curie-Weiss-like magnets. This deviation from the simple Curie-Weiss law can be assigned to short-range order effects. For the $y = 0$ compound, AC magnetic susceptibility was determined in a 10 Oe magnetic field with a frequency of 1 kHz. The temperature dependence of the real part of this susceptibility does not show a spin-freezing temperature. This behavior indicates the absence of a transition towards a long- range order or spin-glass-like state above 2 K. In conclusion, the remaining paramagnetic state, in spite of antiferromagnetic correlations, could be indicative of the presence of a spin liquid or a cooperative paramagnetic state.

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