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Magnetic behaviour of $Sr_{2-x}La_xIrO_4$ CARLOS COSIO, GUSTAVO TAVIZON, Depto. de Fis. y Quimica Teorica, Fac. de Quimica, UNAM, Mexico, PABLO DE LA MORA, Depto. de Fis., Fac. de Ciencias, UNAM, Mexico, ROBERTO ESCUDERO, Inst. de Inv. en Materiales, UNAM, Mexico — Magnetic properties of Sr_2IrO_4 are an interesting topic because the anisotropic behaviour showed in the single crystal case, as well to the variable valence states of iridium. By solid state reaction we have obtained polycrystalline samples of the solid solution $Sr_{2-x}La_xIrO_4$ and performed structural refinements based on the X-ray powder pattern. We have observed that, as a consequence of distortions in the [IrO6] octahedra, the symmetry of the compounds in the solid solution $Sr_{2-x}La_xIrO_4$ goes from the K_2NiF_4 (SG 139) type to $I4_1/acd$ (SG 142). This explanation also is supported by internal parameters optimization with electronic structure calculations using the Wien2K code. On the other hand, magnetic and electrical behaviour characterization of samples in the range of 2-300 K shows that this system can be thought as a weak ferromagnet in all the solubility range. For the high temperature regime the observed effective magnetic moment of iridium ion diverges from the free ion case.

Gustavo Tavizon
Depto. de Fis. y Quimica Teorica, Fac. de Quimica, UNAM, Mexico

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