Abstract Submitted
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Spin glass behavior in the weberite related structure $Dy_{3-x}Y_xTaO_7$ JOSE FRANCISCO GOMEZ GARCIA, Facultad de Quimica, GUSTAVO TAVIZON, Facultad de Quimica, Universidad Nacional Autonoma de México, ALEJANDRO DURAN, Centro de Nanociencias y Nanotecnologia, ROBERTO ESCUDERO, Instituto de Investigacion en Materiales, Universidad Nacional Autonoma de México — Crystalline structures with tetrahedral arrangement of magnetic cations are susceptible to present non-collinear magnetism. Dy_3TaO_7 with weberite-type crystal structure has this arrangement and could display non-conventional magnetic coupling. Previous magnetic studies on Dy_3TaO_7 have characterized this as an antiferromagnetic system with T_N of about 3 K. In this work magnetic properties of polycrystalline samples of the $Dy_{3-x}Y_xTaO_7$, with weberite structure are presented. X-Ray diffraction of our samples are single phase in all range of compositions. Magnetic properties measured from 2 - 300 K shown a typical Curie-Weiss behavior with the Dy^{3+} effective magnetic moment about 10.35 μ_B. The compositions x=0.66, 0.33, and 0.0 display a maximum in the susceptibility *vs.* temperature at 2.3, 2.7, and 3 K respectively. This behavior has been previously assigned to an antiferromagnetic transition; however our AC magnetic measurements as a function of frequency indicate a spin glass behavior. Since magnetic cations have tetrahedral arrangement for x=0, a magnetic frustrated state is anticipated for this composition.

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