Giant Variation of Magnetic Moment with Orbital Degree of Freedom

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The exploration on the magnetic ground state of a localized system has been conventional for a decay starting from the investigation on the MM of paramagnetic salts, the frustrated magnetism, and now to the 2D magnetism. Among them, the MM of the paramagnetic ground state is the one of which less focused on these days. The Curie-Weiss law has been successfully explained the spin only moment of the ground state of paramagnetic salts, and additionally neutron scattering reveals well-matched ordered moment. However, the system with orbital angular moment shows difference between the effective MM and ordered moment like high spin Co^{2+} (d^7) and V^{3+} (d^2) in octahedral ligand field with wide variation of the MM.

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