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Electric Field Control of Magnetic and Polarizability Properties of Trimeric Mixed Valence Clusters

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We study the effects of the external *direct current* (*dc*) electric field in the magnetic and polarizability characteristics of trimeric $Cu(II)-Cu(II)-Cu(III)$ mixed valence clusters. We calculate the temperature and field dependence of the magnitude of the mean dipole moment as well as of its components. We predict the anisotropy of the cluster polarizability. The magnetic moment at the low temperature limit is determined by the competition between the tunnel and Heisenberg interactions and the interaction with the external electric field. It is demonstrated that the external electric field gives an unique possibility of manipulation by the polarizability and magnetic characteristics of trimeric mixed-valence clusters.