【Science and engineering（Chemistry）】

Switching Phenomena in Super-Paramagnets Controlled by External Stimuli

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【Outline of survey】

Switching phenomena in the super-paramagnets or quantum molecular magnets controlled by external stimuli, such as photo-irradiation, an electric field, a magnetic field, pressure, etc., will be investigated in order to realize the quantum effect phenomena and its application to molecule-based quantum magnets.

In this research project, we will focus on the following subjects:

1) Photo-induced switching between single-molecule magnets and single-chain magnets by using bridging spin-crossover complexes.
2) Electrical conducting single-molecule magnets and single-chain magnets.
3) Photo-induced switching between quantum molecule magnets and classical magnets by using photochromic bridging molecules.

【Expected results】

By applying external stimuli, such as photo-irradiation, an electric field, a magnetic field, pressure, etc, the switching phenomena between single-molecule magnets and single-chain magnets and between quantum molecule magnets and classical magnets will be realized. Moreover, it should be possible to prepare electrical conducting single-molecule magnets with high blocking temperatures or quantum GMR.

【References by the principal investigator】

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【Term of project】 FY2008-2012	【Budget allocation】 **164,400,000 yen** (direct cost)

【Homepage address】 http://coord.chem.tohoku.ac.jp/~sakutai/