

## Hamiltonian of the Fe<sub>8</sub> SMM

This text is part section 2 of Ref. [1].

The one-site hamiltonian that fits the experimental data of the Fe<sub>8</sub> molecular clusters, in the presence of a skew magnetic field, at the  $i$ -th site is[2]

$$\mathbf{H}_{Fe8} = \sum_{i=1}^N [-D_{Fe8}(S_z^i)^2 + E_{Fe8}[(S_x^i)^2 - (S_y^i)^2] - h_x S_x^i - h_y S_y^i - h_z S_z^i], \quad (1)$$

where  $N$  is the number of Fe<sub>8</sub> molecules in the medium and  $S_j^i$  (in which  $j \in \{x, y, z\}$  and  $i = \{1, 2, \dots, N\}$ , are the spin-10 operators at the  $i$ -th site). The values of the parameters in hamiltonian (1) is given in Ref. [3],

$$\frac{D_{Fe8}}{k} \simeq +0.276K \quad \text{and} \quad \frac{E_{Fe8}}{k} = -0.035K. \quad (2)$$

## References

- [1] M.T. Thomaz, Onofre Rojas and E.V. Corrêa Silva, ” *Comparison of the thermodynamics of the Mn<sub>12</sub>-ac and the Fe<sub>8</sub> molecule magnets for  $D\beta \lesssim 0.025$* ”, submitted to publication.
- [2] Isabelle Letard *et al.*, Journ. of Applied Phys. **101**, 113920 (2007).
- [3] M. Ueda, S. Maegawa and S. Kitagawa, Phys. Rev. **B66**, 073309 (2002).