Harnessing Diamagnetic Anisotropy for the Synthesis of Rare-Earth Free Magnets

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Bismuth is sought as a source of magnetic anisotropy for the synthesis of new permanent magnets. The synthesis and characterization of these materials is proceeding, and through these studies it is hoped that a new fundamental understanding of orbital angular momentum as it relates to bismuth alloys will be established. Research to develop X-ray techniques to understand the electronic structure of our systems is ongoing.

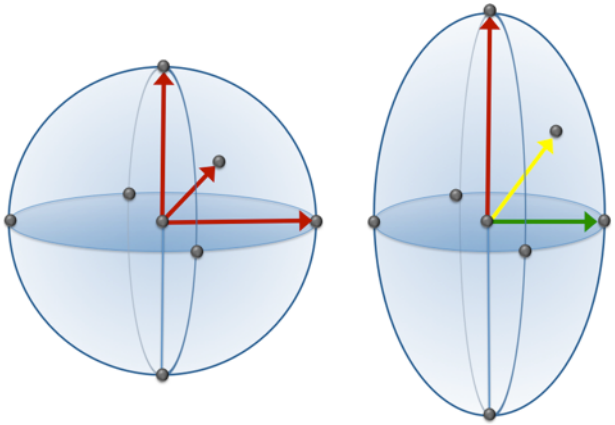

Illustration of magnetic anisotropy. The left side of the figure demonstrates an isotropic magnet. On the right an anisotropic magnet is shown, the preferential axis is illustrated in red.

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