

Magnetic processing of feeble magnetic materials and its application to materials science and X-ray diffraction studies

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Abstract

Feeble magnetic materials such as water, polymers, proteins, cells, ceramics, etc. (these are mostly diamagnetic) are considered not to be affected by applied magnetic fields. However, they do respond to the magnetic field though the susceptibility is very small. By using strong magnetic fields or with appropriate experimental setups, the effect of magnetic fields on feeble magnetic materials can be made visible and utilized.

In this presentation, I talk about magnetic alignments and magnetic patterning of micro crystals and fibers, which might be useful for materials processing. Also, I talk about magnetic alignment of microcrystals used to measure single crystal X-ray diffraction data from microcrystalline powders. The magnetic technique presented here provides a powerful means to align and pattern micro particles.

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