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【806】Antiferromagnetic order probed in individual goethite nanoparticles

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Antiferromagnetic materials play an important role in modern spintronics devices. While the properties of antiferromagnetic bulk materials are often well investigated, much less is known about their properties at the nanoscale. Here, we use X-ray photo-emission electron microscopy (X-PEEM) together with X-ray magnetic linear dichroism to study the magnetism of individual goethite nanoparticles. The X-PEEM data are combined with scanning electron microscopy to correlate the magnetic properties of the nanoparticles with their actual morphology. Our data indicate that goethite nanoparticles are antiferromagnetically ordered at room temperature, similar to the respective bulk, however, a preferred magnetization axis is not found.

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