

MAGNETISM IN CONFINED STRUCTURES

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Magnetism in confined geometries is one of the most active areas of research in the field of nanostructured materials. The extensive activity in this field is driven by the fact that magnetic length scales are close to structural sizes which can be controlled using modern thin film and lithography techniques. In addition, a number of applications in the areas of information storage and sensors have moved basic research results into the application area in a very short period of time.

I will describe a variety of representative basic research results which illustrate some of the exciting and novel results when magnetic materials are confined into small dimensions comparable to magnetic length scales such as dipolar, exchange, and domain sizes. Particular experiments I will illustrate are related to magnetic roughness in magnetic superlattices, exchange bias in magnetic heterostructures and novel magnetic structures in nanostructured magnetic arrays.

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