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12869

Patent(s) Issued

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**Awards Won:**

FLC Award - 2002

Available Technologies

## Cobalt Ferrite (CoFe<sub>2</sub>O<sub>4</sub>) by Molecular Beam Epitaxy

### SUMMARY

Cobalt ferrite (CoFe<sub>2</sub>O<sub>4</sub>) is a magnetic oxide of considerable interest for next-generation magnetic read/write technology due to its enhanced magnetic properties. Although the properties of the bulk material are well understood, well defined thin-films (less than 100nm) have not been synthesized and characterized.

This technology provides a means to produce such films. By using molecular beam epitaxy, epitaxial films of cobalt ferrite on MgO(001) possessing compositions within 10% of the desired 2:1 Fe to Co ratio within the cation sublattice have been developed.

The material shows excellent promise as a pinning layer in read/write devices that would operate at or above room temperature. Well-ordered crystalline films with atomically flat surfaces result from this growth process, and the resulting material exhibits a magnetic properties superior to any that have been previously reported.



### Patents & Intellectual Property

- » Patent #: 7,001,459

### Technology Portfolio(s)

- » Materials Synthesis and Functionalization

### Potential Industry Applications

- » Chemicals

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