

Radiofrequency mössbauer forward scattering spectra in magnetic materials

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Abstract

Radiofrequency (RF) Mössbauer spectra in experiments on forward scattering by thick samples of iron borate (FeBO_3) below the Neel temperature are measured. The spectra have satellites spaced by doubled RF-field frequency. A semiclassical model of Mössbauer transmission through a magnetic absorber exposed to RF reversals of a hyperfine field on nuclei is proposed. The model reproduces all features of the measured spectra. Experiments and modeling calculations indicate additional possibilities for studying soft magnetic materials using this measurement scheme. © 2013 Allerton Press, Inc.

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