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Nanomechanical AC Susceptometry of an Individual Mesoscopic Ferrimagnet JOSEPH LOSBY, ZHU DIAO, FATEMEH FANI SANI, Department of Physics, University of Alberta and National Institute for Nanotechnology, DYLAN GRANDMONT, Department of Physics, University of Alberta, MIRO BELOV, National Institute For Nanotechnology, JACOB BURGESS, Department of Physics, University of Alberta and National Institute for Nanotechnology, WAYNE HIEBERT, National Institute For Nanotechnology, MARK FREEMAN, Department of Physics, University of Alberta and National Institute for Nanotechnology
— A new method for simultaneous detection of both DC and time-dependent magnetic signatures in individual mesoscopic structures has emerged from early studies in spin mechanics. Multifrequency nanomechanical detection of AC susceptibility and its harmonics highlights reversible nonlinearities in the magnetization response of a single yttrium iron (YIG) element, separating them from hysteric jumps in the DC magnetization.

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