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Ferromagnetic resonance of individual magnetic bilayer microwire structures SNORRI INGVARSSON, MUSTAFA ARIKAN, YAT-YIN AU, Science Institute, University of Iceland — Ferromagnetic resonance measurements were done on individual magnetic bilayer microwires. The magnetic layers are separated by a nonmagnetic spacer layer of Cu. Magnetic precession is excited by current running both above the wire structure and through its cross section. Two magnetic precession modes, namely the acoustic (in-phase precession of the two magnetic layers) and the optical (out-of-phase) mode, were clearly revealed. Their frequency dependencies on applied magnetic field were measured, fitted with simple theoretical predictions and explained in the context of interlayer magnetostatic dipolar coupling. The effectiveness of exciting the two precession modes by injected microwave electric current was studied against different layer dimensions. The results are highly relevant to fast switching of small magnetic devices relying on Amperian field generated by in-plane current inside the devices.

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