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Fast Magnetization of Amorphous Metallic Cores

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Due to their high saturation flux density, amorphous metallic alloys play a key role in linear induction accelerators that require ferromagnetic cores with sufficient volt-seconds to support multiple pulses. As both the shape of the material hysteresis curve and the core losses depend on the magnetization rate, dB/dt, measurements at various rates are necessary in any system model involving these alloys. We present the characterization of two candidate materials, Metglas 2605CO and HB1M, at magnetization rates ranging from 1-7 T/u□s. We also compare our results to published data [1].

[1] Smith, C. H., and L. Barberi. "Fast Magnetization Reversals in Tape-Wound, Square-Loop Amorphous Alloy Cores."In Proceedings of the Soft Magnetic Materials Conference, p. 329. 1985.

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