

Micromagnetic Study of Media Noise Plateau in Heat-Assisted Magnetic Recording

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Abstract The relationship between integrated media noise power and linear density in heat-assisted magnetic recording (HAMR) is discussed. A noise plateau for intermediate recording density has been observed in HAMR, similar to that found in perpendicular magnetic recording (PMR). Here, we show, by changing the temperature profile of the heat spot in HAMR, that we can tune the noise plateau regions to different recording densities. The heat spot with sharp temperature gradient favors a plateau at high recording density, while the heat spot with gradual temperature gradient favors a plateau at low recording density. This effect is argued to be a consequence of the competition between transition noise and remanence noise in HAMR.

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