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Hysteresis-induced long-time tails GUENTER RADONS, Institute of Physics, Chemnitz University of Technology — Many systems ranging from magnetic materials to shape memory alloys, or fluids in porous structures show complex hysteretic behavior in the sense that besides major loops, subloops and non-local memory effects are observed. The most prominent phenomenological model to account for such effects is the so-called Preisach model [1]. For this model it is shown analytically that uncorrelated input in time is transformed into output showing power-law decay of correlations and 1/f-noise. The characteristic exponents are shown to depend on the tails of the input density and the Preisach density. Universality classes leading to these results are identified.
[1] G. Bertotti, I. D. Mayergoyz (Eds.), The Science of Hysteresis, Vol.1-3 (Academic Press, London, 2006).

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