

Abstract Submitted
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Non-Arrhenius **Fer-**
romagnetism In 1D Systems LUCA SPADAFORA, FAUSTO BORGONOV
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— Topological phase space disconnection has been recently found to be a general
phenomenon in isolated anisotropic spin systems. This phenomenon sets a general
framework to understand the emergence of ferromagnetism in finite magnetic sys-
tems. Here we study its relevance for finite systems in contact with a heat bath.
The existence of this threshold, inducing extremely large magnetic reversal time, is
shown to be able to determine metastable ferromagnetic behavior in finite samples.
Also, it acts as a real energy barrier. Under suitable conditions the law for average
reversal times can be obtained analytically and confirmed numerically. Consistent
differences from the expected Arrhenius law of reversal times are shown for short
range interacting spin systems.

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