

Abstract Submitted
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Asymmetric diffusion of Cosmic Rays¹ MIKHAIL V. MEDVEDEV,
U. Kansas — We study propagation of Cosmic Rays (CR) in turbulent magnetized
ISM in the presence of a gradient of the mean magnetic field. We discovered that CR
propagate via asymmetric diffusion: the generalization of the conventional random
walk to that with unequal probabilities. We presented a toy model of CR propaga-
tion in the Galaxy as a 1D Markov chain and demonstrate that the particle density
distribution drastically differs from the linear gradient set by the standard diffusion
process. We discuss implications of our findings.

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