

Abstract Submitted
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Unleashing the Power of Microcanonical Inflection-Point Analysis: The Principle of Minimal Sensitivity¹ KAI QI, MICHAEL BACHMANN, The Univ of Georgia — In analogy to the principle of minimal sensitivity proposed by Stevenson for perturbative approaches in quantum field theory [1], we generalize microcanonical inflection-point analysis [2] by probing higher-order derivatives of the inverse temperature $\beta(E)$ for signals of transitions in finite complex systems [3]. To illustrate the power of this analysis, we investigate adsorption properties of a simple-cubic lattice polymer model. The pseudophase diagram based on microcanonical inflection-point analysis is constructed. This example confirms the general potential of microcanonical statistical analysis for studies of pseudophase transitions for systems of finite size.

[1] P. M. Stevenson, Phys. Rev. D **23**, 2916 (1981).

[2] S. Schnabel, D. T. Seaton, D. P. Landau, and M. Bachmann, Phys. Rev. E **84**, 011127 (2011).

[3] K. Qi and M. Bachmann, preprint (2015).

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