

Peer Review

Review of: "Autonomous Second-Order ODEs: A Geometric Approach"

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The paper under review introduced a Riemann metric on an open subset of the first-order jet space via an autonomous second-order ODE, and defined the notion of energy foliation for autonomous ODEs. It also explores the geometric properties of the foliation, which constitutes a minimal foliation. The authors examined the damped harmonic oscillator as a key example to illustrate the applicability of the results.

Based on the research, further work could explore higher-order ODEs or extend the analysis to Lagrangian systems in higher dimensions, which is meaningful. The results in the manuscript are original, and the proof is correct. The paper is easy to read. In my opinion, it is sufficiently interesting for the mathematical audience of the Journal.

So I recommend that the manuscript be published.

Declarations

Potential competing interests: No potential competing interests to declare.