

Peer Review

Review of: "PhysAgent: A Multi-Agent Approach to the Automated Discovery of Physical Laws"

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1. Kepler's and Newton's laws were derived from *synthetic datasets*, not experimental observations. While valid for testing, real-world data (with noise, missing values, or experimental uncertainty) should be incorporated to demonstrate robustness.
2. The discoveries highlighted (Kepler, Newton, GaAs band gap) are well-established. The system's potential for generating *new* scientific insights is not convincingly demonstrated. A case study with less-trivial unknowns would strengthen impact.
3. The paper acknowledges the heavy computational cost of ab initio methods. Without benchmarks on runtime, scalability, or resource usage, it is unclear how PhysAgent compares to existing automation workflows in practical settings.
4. While a comparison with MetaGPT is provided, evaluation against other science-specific frameworks (e.g., symbolic regression tools, automated theorem discovery systems, AutoML for science) would situate the contribution more clearly.

Declarations

Potential competing interests: No potential competing interests to declare.