Review of the Article: "Artificial Intelligence in Scientific Peer Review: From Auxiliary Tool to Hybrid Expertise"

Brief Summary

The article proposes a hybrid model for scientific peer review that integrates artificial intelligence (AI) with human expertise to address the current crisis in academic publishing. Its central contribution is the development, testing, and open publication of a universal prompt designed for AI systems to conduct standardized preliminary reviews of scientific manuscripts. The authors position this tool as a means for author self-assessment, editorial pre-screening, and ultimately, enhancing the objectivity and efficiency of the entire publication process.

Research Relevance

The topic is highly relevant and addresses a critical pain point in modern science: the unsustainable workload on peer reviewers coupled with declining publication quality and the rise of AI-generated content. The work correctly identifies the limitations of both purely human review (subjectivity, slowness) and current AI systems (inability to assess true novelty). The proposed solution is timely and aligns with the growing movement towards open science and improved research integrity.

Scientific Novelty (Score: 28/30)

The work demonstrates a strong combination of **I-Novelty** and **P-Novelty**.

* **P-Novelty (Paradigm Novelty):** The article does not merely improve an existing process; it proposes a new paradigm for scientific communication—"open expertise." This model, where a publication includes its own AI-generated review and raw data as part of the evidence package, is a fundamentally new approach to ensuring transparency and verifiability. The universal prompt itself acts as a proposed new "system of axioms" for standardized evaluation, aiming to form a new, independent research program for meta-scientific analysis.

* **I-Novelty (Intra-Paradigm Novelty):** Within this new framework, the work provides significant developments: a functional classification system for manuscripts to optimize resource allocation and a tested, iterative methodology for prompt engineering that addresses known instability issues in AI output.

The presence of extensive supplementary materials (the prompt itself, raw data, and an example AI review of the author's own monograph) is a mandatory favorable factor that strongly supports the claimed novelty by providing a fully verifiable and implementable tool.

Methodological Rigor (Score: 23/25)

The methodology is **adequate for the stated P-Novelty goals**. The scale of the empirical base (testing on >50 articles across various fields) is sufficient for an initial proof-of-concept and justification of the new system. The paper transparently details the iterative development process, identifying and solving key problems such as result instability and focus on formal templates. The method demonstrates high internal **consistency** by applying the same refined prompt across the test corpus. The decision

to use self-analysis for public demonstration is ethically sound and practical. The rigor is bolstered by the provided supplementary materials, which allow for immediate replication and verification of the process.

Practical Value (Score: 19/20)

The practical value is exceptionally high. The tool is immediately applicable for:

1. **Authors:** For rigorous self-assessment prior to submission.

2. **Editors:** As a pre-screening filter to standardize initial checks and reduce reviewer workload by an estimated 40-90%.

3. **Educators:** As a teaching tool for graduate students in scientific methodology and critique.

The open-source nature of the prompt encourages widespread adoption, community improvement, and integration into existing publishing platforms and AI tools, maximizing its prospective impact.

Visualization Quality (Score: 13/15)

The article references two figures (a flowchart of the hybrid system and a comparative table of methodologies) that are crucial for understanding the proposed model and results. While the figures themselves are not included in the provided text body, the descriptions confirm they directly support the conclusions. The text is well-structured, and the argumentation is clear. Points are deducted solely because the actual figures were not available for evaluation in this submission.

Ethical Aspects (Score: 10/10)

The work fully adheres to ethical norms. It promotes openness by publishing the core tool (the prompt) and underlying data under open licenses (Zenodo, Dataverse), strictly following FAIR principles. The approach to testing using self-analysis instead of unpublished third-party work demonstrates respect for intellectual property and confidentiality. The article acknowledges the limitations of AI and emphasizes its role as an enhancer, not a replacement, for human expertise, showing a balanced and responsible approach.

Style and Formatting

The article is well-written, logically structured, and follows a standard scientific format. The language is clear and professional. The reference list is comprehensive and appropriately cited.

Conclusion and Recommendations

* **Document Type and Category:** This is a **Category B (Applied Research)** article with significant elements of **Category A (Fundamental work)** due to its proposed paradigm shift.

* **Final Score:** **93/100** (Accept - highest standard).

* **Interpretation:** The work presents a novel, rigorously developed, and highly practical solution to a pressing problem in scientific publishing. Its open-science approach, combined with a strong empirical foundation and immediate applicability, sets a high standard for research in this domain.

* **Journal Level Recommendation:** The significance, novelty, and broad applicability of this research make it suitable for leading international journals in the fields of scientometrics, research integrity, and science policy (**Q1**).

Recommendation: Accept (90-100).

This review was created using the DeepSeek-V3 artificial intelligence system based on the universal prompt v.250825.31 (author Kravtsov G.) for demonstration and educational purposes, while maintaining full compliance with the requirements of GOST R 7.0.100-2018 for scientific reviews.