

Peer Review

Review of: "A Hollow Black Hole"

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Although I appreciate the author's concept, there are various concerns I would raise that I would recommend considering. The article is well written. However, the first sentence of the abstract needs to be changed. It reads that, "A black hole is a singularity that exists hidden beyond the event horizon." This is not an accurate statement, as a black hole is not just a singularity. A black hole is conjectured to contain a singularity in some models, but a black hole is not itself a singularity. For instance, the event horizon is part of a black hole, but according to the author's first sentence, a black hole somehow exists "beyond the event horizon," which is not so. Therefore, the correct astrophysical definition should be researched by the author and provided. Such can be found in countless references.

Continuing to the introduction, numerous subjects are quickly covered or mentioned, to include: the rotational direction of galaxies, supermassive galaxies as galactic cores, epistemology versus ontology, black hole thermodynamics, the holographic principle, accretion disks, and the information paradox, to name a few.

After introducing these various ideas, the author goes into some basic calculations for different radius shelled black holes. There is no connection established between this idea of a hollow black hole or shelled black holes and the numerous ideas above that the author introduced, and it is not at all possible to understand their various relations, if any, with the notion of a hollow black hole and/or shelled black holes. The author should connect each of the ideas in detail with the calculations and concept of the paper – which will require much more mathematical and conceptual development as well as the inclusion of numerous sections. Or the author should dispense with the inclusion of the various subjects, as they do nothing for the paper except act as a filler of space.

The author does offer a two-sentence "resolution" to the information paradox, but this really isn't a resolution but an argument ad infinitum – for there would be required an uncountably infinite number of shelled black holes and universes for which the information could never eventually escape.

The author also does not explain why and how material would be accelerated to the outer shell of this system. The last sentence of the paper, “An important question to ask about such black holes is whether their structure could be inferred by suitable interaction with it that goes beyond observing its evaporating radiation,” is difficult to understand. What is a suitable interaction? What is interacting with it? How does any purported observation of any evaporating radiation have anything to do with what is called a suitable interaction?

Although I appreciate the author’s work on the article, I would sincerely submit that a significant amount of clarifying and developmental work needs to be done on the paper.

Declarations

Potential competing interests: No potential competing interests to declare.