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## Robustness of particle creation in a formation of a compact object

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The fact that particle creation arises even in a formation of compact horizonless object has been applied to distinguish between a black hole and a black hole mimic. In this approach, it is revealed that radiation from a compact object is mainly classified into three types: transient Hawking radiation, post-Hawking burst, and late-time burst. However, these models are using a hollow shell and not realistic. Thus, we evaluate particle creation in a concrete model having matter at first.

Interestingly, similar results to the case for the hollow shell model is obtained. This implies that particle creation in a formation of a compact object has robust property. Hence, we explore how common property this robustness is in a more general shell model. In order to explore this robustness, we assume conditions between the outside and inside null coordinates of the shell and show that particle creation in a formation of a compact object is robustness in the sense that radiation power does not depend on the inside detail.

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