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On the fate of evaporating black holes: how the burden of their memory stabilizes them

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The "memory burden"effect describes how an object's stored information resists its own decay. This effect is especially pronounced in "saturons"—systems with maximal entropy consistent with unitarity—of which black holes are prime examples. I will show how this memory burden can halt Hawking evaporation, stabilizing black holes against complete decay. Importantly, this mechanism is not limited to gravitational systems: it also appears in renormalizable field theories. To illustrate its broader relevance, I will present a soliton model that shares key features with black holes and is similarly stabilized by its memory content. Finally, I will discuss unique phenomenological implications and potential observational signatures, particularly relevant for dark matter scenarios

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