

Quantum strong cosmic censorship and black hole evaporation

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It is common folklore that semiclassical arguments suggest that in black hole evaporation an initially pure state can become mixed. This is known as the *information loss puzzle* (or *it paradox*). Here we argue that, if taken at face value, semiclassical gravity suggests the formation of a final singularity instead of information loss. A quantum strong cosmic censorship conjecture, for which we give a rigorous statement, supports this conclusion. Thus, there are no reasons to expect a failure of unitarity in black hole evaporation or for any quantum gravity theory that can ‘cure’ singularities.

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