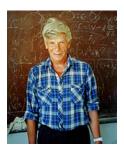
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Why does expectation value of stress energy tensor blow up near the event horizons?

Thursday, 13 October 2022 17:35 (25 minutes)

We consider a massive scalar field theory on static four-dimensional space-times with horizons. We study the near horizon behaviour of the quantum expectation values of the stress-energy tensor operator for the thermal states with arbitrary temperatures. It turns out that the dependence of the expectation values on the temperature and tensor structure of the stress-energy tensor are different from the usual ones in the Minkowski space-time. Moreover, for non-canonical temperatures these expectation values are divergent on the horizons. We also show that the Wightman functions have additional infrared peculiarities near the horizons.

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