Probing extreme gravity in stellar collapse

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ABSTRACT

The standard way to understand quantum corrected black holes leads to the information loss paradox and the lifetime dilemma. A radical way out of this situation is to give up a hypothesis which is tacitly assumed in the vast majority of works on the subject: that the classical singularity is substituted by something effectively acting as a sink for a long period of time, as seen by asymptotic observers. Eliminating this characteristic changes drastically much of the physics now associated to black holes. A nice feature of the new hypothesis it that it offers a clear possibility of experimental falsifiability with upcoming gravitational waves observations. In this talk I will discuss these possibilities.