

Invited Speaker

Name: Elizabeth Winstanley

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Title: Quantum expectation values on black hole space-times

Abstract: The renormalized expectation value of the stress energy tensor (RSET) is an object of central importance in quantum field theory in curved space-time, but calculating this on black hole space-times is far from trivial. The original methodology was developed in the 1980s and 1990s and successfully applied to a range of quantum fields on four-dimensional Schwarzschild black holes. The subject has enjoyed a renaissance in the past few years with the development of novel approaches to computing the RSET and renormalized vacuum polarization (VP). These advances have enabled calculations on a wider range of black hole space-times to be performed. In this talk we will review both the original and latest methodologies and recent results for the RSET and VP on asymptotically flat, de Sitter and anti-de Sitter black holes.