

Abstract for an Invited Paper  
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**A Precision Test for an Extra Spatial Dimension Using Black-Hole—Pulsar Binary Systems**

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Given the difficulties in testing current frontier physics ideas in earth-based experiments, we might profitably look to the cosmos for observational tests. I will discuss observations that could set a limit on the size of a warped extra spatial dimension in the braneworld scenario. The observations would be similar to those that provided evidence of gravitational radiation by the binary pulsar B1913+16. In the presence of a warped extra spatial dimension a stellar mass black hole will evaporate at a sufficiently high rate to produce an observable orbital effect in a black-hole—pulsar binary system. For some masses and orbital parameters the binary components will outspiral, the opposite of the behavior due to energy loss by gravitational radiation alone. Observations of a black-hole—pulsar system could set considerably better limits on size of the extra dimension in these braneworld models than could be determined by torsion-balance gravity experiments in the foreseeable future.