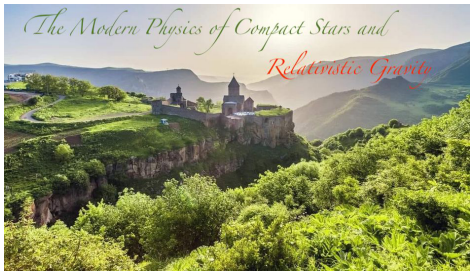

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Quantum vacuum effects induced by branes in AdS spacetime

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We discuss the vacuum expectation values (VEV) of the field squared and energy-momentum tensor for quantum fields in background of anti-de Sitter (AdS) spacetime in the presence of branes. The boundary conditions imposed on the fields modify the spectrum of vacuum fluctuations and give rise to contributions in the VEVs depending on the geometry of the branes and on the specific boundary conditions. The vacuum forces acting on the branes are investigated and the possibility for the stabilization of the interbrane distance is discussed. In models with locally AdS spacetime and with a part of spatial dimensions compactified on a torus, the vacuum current densities may appear for charged fields. These currents flow along compact dimensions and are periodic functions of the magnetic flux enclosed by compact dimensions, with the period equal to the flux quantum. They can serve as sources of large scale magnetic fields in braneworlds.

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