

# Colloquium

University of Texas at Arlington- Mathematics Department  
*Proudly presents*

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## “Negative mass theorem for surfaces of positive genus”

Friday, November 14, 2008

2:30pm

304 Pickard Hall

### **Abstract:**

A well known quantity in spectral geometry is the determinant of the Laplacian. On a closed surface, this is heuristically the product of the eigenvalues, but because this product diverges it is defined using a zeta function regularization. The determinant has been studied and applied in topology, geometry, analysis and mathematical physics. In this talk we study a related quantity - the regularized trace of the inverse of the Laplacian. Physically it represents the sum of squares of the wavelengths of the surface. It also has a probabilistic interpretation, and moreover it is some kind of analog for surfaces of the ADM mass from general relativity. In this talk we explain these various points of view for this invariant and discuss a 'negative mass theorem'.

*Refreshments & Socializing following the talk*  
<http://www.uta.edu/math/pages/main/seminar.htm>