

# Colloquium

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

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DICK AND MARTHA BROOKS ENDOWED PROFESSOR

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**Friday, March 5, 2010**

3:00pm

304 Pickard Hall

“Looking Through Your Eyes: Optimally”

## **Abstract:**

In this talk we present a modeling and control strategy to orient your eyes -- typically for the purpose of tracking a moving target. Eye orientations are constrained by Listing's Law originally proposed in the 19th century by Listing, Donders and Helmholtz. The constrained space is parameterized as a sub manifold of  $SO(3)$  and we define a Riemannian Metric on this space. A kinetic energy is defined using this metric and geodesic curves are computed using the corresponding Euler Lagrange equation. Subsequently we add on a potential energy term and an external generalized torque with the eventual goal to study eye tracking problems with muscles actuating the eye rotations. We demonstrate our results using simulation.

*Refreshments served before the talk and socializing will follow after*  
<http://www.uta.edu/math/pages/main/seminar.htm>