CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, November 9
3:00 – 4:00 PM
Maria Sanford, Room 101

SINGULAR PERTURBATION: AN INTRODUCTION

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Abstract: In 1982, Celso Costa discovered a complete, minimally embedded thrice punctured torus in $\mathbb{R}^3$. Amazingly, this was the first complete, embedded minimal surface in $\mathbb{R}^3$ discovered since the Plane, the Catenoid and the Helicoid. Shortly after, Hoffman and Meeks extended Costa's surface to a family of surfaces with prescribed genus and three ends. A natural question was then: What finite topologies arise as complete embedded minimal surfaces in $\mathbb{R}^3$. Singular perturbation, beginning with the work of Kapouleas and others, has proven to be a very powerful tool in finding minimal surfaces with prescribed genus, not only in $\mathbb{R}^3$ but in general Riemannian three manifolds. We will discuss the development and basic ideas of singular perturbation in basic settings, as well as more recent work in the field.

For further information:
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