

MATHEMATICS DEPARTMENT
North Carolina State University

SPECIAL SEMINAR

Wednesday, February 5, 2003
2:35 p.m. 330 Harrelson Hall

Michael Sullivan

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**“Counting holomorphic curves: ‘hard’ results
in symplectic geometry”**

Gromov’s work in the mid-eighties on holomorphic curves in symplectic manifolds has since led to the development of many geometrical (“hard”) results in a theory once considered topological (“soft”). In the late eighties, Floer develop a symplectic invariant, now known as Floer homology, which counts certain holomorphic curves. This invariant has proved to be quite useful; for example, it was used in the proof of the Arnold Conjecture for Hamiltonian dynamics.

Contact geometry is the odd-dimensional analog to symplectic geometry. Despite the similarities between the two fields, only recently have “hard” results emerged using Floer-type counts of holomorphic curves. I will survey some of these results, including a computation (joint with M. Hutchings) which conjecturally recovers Seiberg-Witten-Floer homology, a useful tool to study four-dimensional manifolds.

Graduate students are invited to attend.

Dr. Khouider is a candidate for a faculty position.

Tea will be served in HA 243 at 3:30 p.m.