Analysis and Differential Geometry Seminar

Monopoles and the Sen Conjecture

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Abstract: Sen's 1994 conjecture for the L^2 cohomology of the moduli spaces of $SU(2)$ monopoles is a test case for geometric analysis on non-compact spaces. The charge 2 moduli space, known as the Atiyah-Hitchin manifold, is well-understood as an example of a 'fibered boundary' manifold, but for higher charges the moduli spaces are more complicated and admit an increasingly wide variety of different asymptotic regimes. I will report on a combination of joint projects which lead to a systematic understanding of these spaces as examples of 'quasi-fibered boundary' (QFB) manifolds, and, through careful analysis of the decay of harmonic forms on such spaces, to a proof of Sen's conjecture in the new case of charge 3.

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Mathematics and Science Center: MSC W301

Mathematics
Emory University