Math and Stat Colloquium
Thursday, March 22
3:30pm SER 244

Refreshments will be served in the Lund Hall Foyer at 3 p.m.

Speaker:
Denson Hill
Stony Brook University

"Most Smooth Vector Fields Have No Solutions"

Abstract: If you are puzzled, it is because you are thinking about real vector fields. We are talking about smooth, but complex vector fields; i.e., of the form X + iY, where X & Y are real vector fields. A famous example is the Cauchy-Riemann vector field in 2 real dimensions.

Now any vector field, real or complex, in any dimension annihilates the constant functions. These are the trivial solutions. So the question is, are there any other solutions, aside from the constants, even locally? In real dimension greater than 2, if the vector field is chosen randomly, then with probability one (in the sense of Baire category) there are no other solutions except for the trivial ones.