PDE, Complex Analysis and Differential Geometry

UNIVERSITY OF NOTRE DAME
Department of Mathematics

Speaker: **John Holmes**
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Tuesday, February 14, 2012
11:00 am
258 Hurley Hall

Title: The Initial Value Problem for a Nonlinear Heat Equation

Abstract:
It is shown that the Cauchy problem of a nonlinear heat equation is locally well-posed for initial data in a class of Gevrey spaces with index $\sigma \geq 1$. This implies that the regularity of the solution is Gevrey-σ in the space variable and Gevrey-2σ in the time variable. Furthermore, the regularity in the time variable is optimal. That is, there exist Gevrey-σ initial data for which the corresponding solution is not Gevrey-r, in the time variable, for any $1 \leq r < 2\sigma$.