DIFFERENTIAL GEOMETRY/PDE SEMINAR

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Constructing contact forms

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Contact one-forms define hyperplane fields that are maximally non-integrable. In this sense, they are the antithesis of foliations. The existence of a globally defined contact form is a topological and highly nonlinear differential condition. A general existence theory for contact forms is far from complete.

In this talk we present a geometric parabolic flow that deforms suitable one-forms to contact forms. We present the new result that the product of any orientable, compact three-manifold with any orientable, compact surface is contact.

This is joint work with Lani Wu.