1075-35-182 **Paul Smith***, University of California, Berkeley, 970 Evans Hall #3840, Berkeley, CA 94720.

Conditional global regularity of Schrödinger maps: sub-threshold dispersed energy.

In 2008, Bejenaru, Ionescu, Kenig, and Tataru jointly proved global-wellposedness in dimensions $d \geq 2$ for the Schrödinger maps initial-value problem

$$\begin{cases} \partial_t \phi & = \phi \times \Delta \phi \text{ on } \mathbb{R}^d \times \mathbb{R} \\ \phi(0) & = \phi_0, \end{cases}$$

$\phi : \mathbb{R}^d \times \mathbb{R} \to \mathbb{S}^2 \hookrightarrow \mathbb{R}^3$, under the assumption that ϕ_0 is sufficiently small in $\dot{H}^{d/2}$. Working in the $d = 2$ energy-critical setting, we prove a conditional global regularity result valid for a class of ϕ_0 with energy up to the ground-state 4π threshold. Developing the caloric gauge in the sub-threshold setting sets the groundwork for this extended result, though the key improvements come from a tailored local smoothing estimate for a magnetic Schrödinger equation and from a closely-related bilinear Strichartz estimate. (Received August 29, 2011)