

SPEAKER:

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TITLE:

Existence of effective burning velocity in cellular flow for curvature G-equation

ABSTRACT:

G-equation is a popular level set model in turbulent combustion, and becomes an advective mean curvature type evolution equation when the curvature effect is considered:

$$G_t + \left(1 - d \operatorname{Div} \frac{DG}{|DG|}\right)_+ |DG| + V(x) \cdot DG = 0.$$

In this talk, I will show the existence of effective burning velocity under the above curvature G-equation model when V is a two dimensional cellular flow. Our proof combines PDE methods with a dynamical analysis of the Kohn-Serfaty deterministic game characterization of the curvature G-equation based on the special structure of the cellular flow. This is a joint work with Hongwei Gao, Ziang Long and Jack Xin.