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"The Question of Stability of Facets of Crystals Growing from Vapor"

ABSTRACT:

We are concerned with a quasi-steady Stefan problem with the Gibbs-Thomson relation and a kinetic term. This set of equations is meant to model ice crystals growing from vapor. Our goal is to expose a number of properties of solutions to the system. The most important question for us is to show the existence of a region in the phase space where the facets of the crystal remain stable, that is, they neither break nor bend.

In this talk, we survey our earlier work with Yoshikazu Giga and announce new results indicating what happens past the onset of instability.