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JOURNAL CLUB

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The Physics of Snowflakes:  
A Close Look at the Real Origins of Pattern Formation

by

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ABSTRACT

This talk will examine the growth of ice crystals from the vapor phase, focusing on the non-equilibrium dynamical processes that govern crystal growth in general. Ice is particularly interesting because the growth rates of both the basal and prism facets vary strongly and non-monotonically with temperature. Much of this behavior is thought to be related to the onset of surface melting at approximately  $-15^{\circ}\text{C}$ , although many theoretical uncertainties remain. In addition to normal growth, we have also been examining the effects of strong electric fields on diffusion-limited needle crystal growth, again using ice as a case study. Both theory and experiments reveal the onset of an unusual growth instability at high voltages, leading to the rapid growth of thin needle crystals.

Friday, January 16, 2004  
Elvey Bldg. Globe Room  
3:45 pm