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**Mechanisms of Stranski Krastanov Growth** ARVIND BASKARAN, University of California, Irvine, PETER SMEREKA, University of Michigan, Ann Arbor — During the Heteroepitaxial growth of strained semiconductor films (like Ge on Si) the self assembly of quantum dots is observed. This is often reported in experiments to take place though the Stranski Krastanov (SK) growth mode, where the film grows in a layer by layer fashion up to a certain critical thickness after which islands (dots) form. In this talk we present a study of the SK growth mode using a solid on solid Kinetic Monte Carlo model. The importance of the use of such an discrete stochastic model and its merits over the continuum approach will be outlined. Entropy is found to play a very crucial role in the SK growth mode. The mechanism of the SK growth is understood in the context of a delicate balance of the energy and entropy. This is joint work with Peter Smereka.

Arvind Baskaran  
University of California, Irvine

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