КАТЕДРА МЕТЕОРОЛОГИЯ И ГЕОФИЗИКА
ФИЗИЧЕСКИ ФАКУЛТЕТ - СУ “Св. Кл. Охридски“

Семинар „Кръстанов“

В петък, 10.12.2021, 16:15 ч., онлайн

LUCAS BENOIT--MARÉCHAL

PhD Candidate from École doctorale de l’Institut Polytechnique de Paris (EDIPP)

ще изнесе доклад на тема:

Morphological instabilities of vicinal surfaces during epitaxial growth

Резюме: The study of step dynamics on vicinal surfaces is a long-standing problem in crystal growth, dating back to the seminal work of Burton, Cabrera, and Frank (BCF) in 1951. On these surfaces, the crystal grows by step flow, i.e., by propagation of the atomic steps, which may develop instabilities breaking the regularly spaced, straight-step initial configuration.

Using nonequilibrium thermodynamics and the formalism of configurational forces, we derive a generalized Gibbs--Thomson relation for the step chemical potential which incorporates the necessary coupling between the diffusion fields on adjacent terraces (the "chemical effect"). This leads to a free-boundary problem that generalizes the BCF model for the governing equations of step flow where full account is taken of the dynamics terms. In doing so, we circumvent the quasistatic approximation that prevails in the existing literature. Using this generalized model, we demonstrate the significant impact of the chemical effect and dynamics terms on stability, and show how they allow to reinterpret some experimental results from the literature in a new light.

https://us02web.zoom.us/meeting/register/tZIucu6hpzgvGNFaicMrh_-buE2As_w7RJAW

Всички заинтересовани са добре включили се!