On some models of growth

Ireneo Peral, Universidad Autónoma de Madrid

We will review some result for the Kadar-Parisi-Zhang model of roughening of surfaces and we will propose some mathematical models arising in the theory of epitaxial growth of crystal. We focalize the study on a stationary problem which presents special analytical difficulties, it is in fact a borderline case. We study the existence of solutions. The central model in this work is given by the following elliptic equation,

$$\Delta^2 u = \det\left(D^2 u\right) + \lambda f, \quad x \in \Omega \subset \mathbb{R}^2.$$

The framework to study the problem deeply depends on the boundary conditions.

Some related results and problems will be given.

REFERENCES

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