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*Nonlocal evolution equations from epitaxy and liquid crystals*

Epitaxy is a process in which a thin film is grown above a much thicker substrate. Even in the simplest case, with no deposition, and purely elastic interactions, such growth leads to a nonuniform film thickness since the film and the substrate can have different rigidity constants. The resulting system is thus an energy driven one, but quite irregular. Moreover, since the underlying mechanism involve strongly nonlocal interactions, such energies generally contain some nonlocal terms. Similarly, the evolution of nematic liquid crystals, systems is modeled by a highly complex energy driven system. In this talk I will present some recent results about the regularity of solutions to several equations arising from nematic liquid crystals and epitaxy.