

# Abstract

## How Not to Throw Away the Proverbial Baby: The Nonlocal Model of wetting

The use of coarse grained models is widespread in physics (e.g. the random walk description of a polymer chain or the interfacial model of wetting), the goal being to capture the essential physics leaving out irrelevant details. However very seldom can one deduce a mesoscopic model from a microscopic one. I will show how a careful derivation of an interfacial Hamiltonian from a bulk model uncovers very subtle nonlocal effects which nevertheless explain a 20 year old problem in the theory of wetting transitions: the discrepancy between theory and simulations of short range 3d wetting. I'll also briefly present recent work on the generalisation of this Nonlocal Model.

In short, I will show why the standard models of wetting were throwing away the baby with the bath water (occasionally).