

Abstract Submitted
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Equilibrium statistical mechanics of films on a substrate ANTONIO PEREIRA, ALEXANDR MALIJEVSKY, SERAFIM KALLIADASIS, Department of Chemical Engineering, Imperial College London — We investigate the small-scale behavior of a fluid (liquid or gas) film in contact with a substrate by using a density-functional-theory approach in the context of the description of the statics and dynamics of interphase boundaries. The fluid-fluid interaction potential is divided into a short-range repulsive component and a long-range attractive one. Different types of interaction potentials are considered as well as the influence of the wall potential onto the fluid density profile and a comparison with a gradient theory obtained from the density-functional approach is also made. Emphasis is then put on examining the case of a three-phase conjunction and the connection between the micro- and the meso-scale.

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