# Thermodynamic stability of droplets and thick films confined in a pore

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Thermodynamic models for droplets and thick films in a pore are set up. The purpose of these models is to enable calculation of the Helmholtz free energy and grand potential from free, independent variables. By differentiating the free energies to obtain the Jacobian vectors and Hessian matrices, we may identify stationary states in these potentials and classify them as stable equilibrium states, metastable or unstable.