

In order to obtain more detailed results the second-order nonlinear partial differential equation (3) can be solved by finite-difference methods.¹⁷ We introduce a two-dimensional ($r' - z'$) computational rectangular mesh, replace the continuous variables r' and z' by discrete ones, and rewrite Eq. (3) as a set of difference equations. As usual, we guess initial values of θ for grid points of the entire mesh and then proceed to run through the mesh recalculating θ by Newton's method. If the procedure converges, it is then self-consistent. The convergence takes from 50 to 500 passes depending upon the choices of the initial values for the grid structure. The total free energy from Eq. (4) for the particular structure obtained by this process is calculated by Simpson's rule.¹⁷