

The rapid increase in the development of new VLSI structures indicates that the most cost effective way to design semiconductor devices is using numerical simulation based on sophisticated bi or three- dimensional models. In this paper we detail the solution of the bi- dimensional Poisson equation applied to a MOSFET in thermal equilibrium. This problem, although quite simple, can give detailed information about the operation of submicron devices in certain conditions, and serves as a good introduction to the study of the dimensional effects in the operation of semiconductor structures. We obtain numerical results and establish some comparisons between devices with channels length of 5.0 micrometers and 1.0 micrometers .