Numerical Simulations for the Beam-Induced Electron Cloud in the LHC Beam Screen, <u>O. BRUNING</u>, CERN - The following work summarises simulation results obtained at CERN for the beam-induced electron cloud and looks at possible cures for the heat load in the LHC beam screen. The synchrotron radiation in the LHC creates a continuous flow of photo-electrons. These electrons are accelerated by the electric field of the bunch and hit the vacuum chamber on the opposite side of the beam pipe where they create secondary electrons which are again accelerated by the next bunch. For a large secondary emission yield the above mechanism leads to an exponential growth of the electron cloud which is only limited by space charge forces. The simulations use a two-dimensional mesh for the space charge calculations and include the effect of image charges on the vacuum chamber wall. Depending on the photo yield for the production of photo-electrons, the secondary emission yield and the reflectivity, the heat load can vary from 0.1 Watt/meter to more than 15 Watt/meter.