## Abstract

In this work, we simulate numerically the thermal effects in nitrogen at atmospheric pressure caused by a negative corona DC discharge of low current. A mathematical function that simulates the injection of the thermal transfer in gas is proposed. The simulated discharge is of a negative point to plane mass type, with an interelectrode distance of 12 mm and a symmetry about the axis of discharge. The spatial and temporal evolution of neutrals is analyzed based upon the equations of continuity, momentum and energy in a cylindrical geometry. For the geometry of the system, the FCT (flux corrected transport) procedure was adopted