

***ELECTRIC CONDUCTIVITY COMPUTATION FOR A TWO TEMPERATURES ARGON PLASMA***

N.A.Harabor<sup>1</sup>, M.Cristea<sup>1</sup>, G.Zissis<sup>2</sup>

<sup>1</sup>Politehnica University Bucharest, Romania

<sup>2</sup>Universite Paul Sabatier, Toulouse III, Toulouse, France

***Abstract:*** *The electric conductivities for argon at atmospheric pressure have been calculated for three values for  $\theta = T_e/T_h$  (1, 1.2, 2) using the most recent data to determine the collision integrals, based on the Chapman-Enskog method, in a two-temperature (2T) approach. A model similar with that of Devoto, was employed in order to determine the (2T) electrical conductivity versus electronic temperature dependence. Number densities were also computed, making the pressure and the lowering of the ionization energy corrections, with respect to the electronic temperature. A shift in the electric conductivity dependence on  $\theta = T_e/T_h$  is observed at around 9600 K. The reason for this shift is that the electron-neutral interactions overwhelmingly more frequent than the charge-charge interactions at low temperatures. The results are in good agreement with the other similar ones published in the literature.*