



## ON THE INFLUENCE OF IONIZATION/RECOMBINATION AND RADIATIVE LOSSES IN THERMAL PLASMA MODELLING

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We have investigated the influences of the ionization/recombination and the radiative energy loss on the particle and temperature distributions in a pure argon inductively coupled plasma. To calculate the flow and the temperature field an axi-symmetric 2-temperature mathematical model has been used. Comparisons were made between results obtained by using different types of data for the effective ionization/recombination coefficient and for the radiative energy losses. Experimental data and a hybrid collisional-radiative model were used for the effective ionization and recombination coefficient. For the total radiative loss also experimental data and a non-local thermal equilibrium model were applied. With the mathematical model it was possible to trace the effects of non-equilibrium aspects of ionization and recombination on the electron and heavy particle temperature and the electron density profiles. The electron density is the most suitable parameter to distinguish the different sets for the ionization/recombination coefficient and the radiative energy loss.