

COMPUTATIONAL TECHNIQUES TO ANALYZE THE NITROGEN SECOND POSITIVE SYSTEM

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One of the most easily identifiable parts of a nitrogen molecular emission spectra is the second positive system, which has strong emission bands between 300 nm and 400 nm. This system is often used to determine the gas temperature for electric discharges since the rotational temperature in most of these systems is very close to the actual gas temperature. However, when using these systems many researchers assume that the band intensity for middle range angular momentum quantum numbers can be fitted by a Boltzmann distribution. This assumption is only true if the system is in thermal dynamic equilibrium, which does not occur for most electric discharges. This poster will focus on simulations of the system and how these simulations can be used to more accurately predict the gas temperature in a discharge without assuming thermal equilibrium.