

EFFECT OF THE DUST ON RELATIVE [OII] and  
[SII] INTENSITIES IN HII REGIONS.

M. Erdelyi Mendes and J.R.D. Lépine

Instituto Astronômico e Geofísico, USP, Brasil

ABSTRACT: Dust in HII Regions can alter significantly the observed properties of emission of the gas, and in the presence of density gradients it affects the intensity ratio of the lines used in the determination of the electron density due to light scattering by dust grains. The observed discrepancies between the values of the electron density obtained through the ratios of the intensities of the component of the  $2D - 4S$  doublets of [OII] and [SII] and radio measurements are usually attributed to large fluctuations in density. To explain these discrepancies we have constructed models that take into account the effect of multiple light scattering by dust grains embedded in a HII region. Our results, applied to the Orion Nebula, show that the observations of the doublets of [OII] and [SII], if not corrected for the effect of multiple scattering of light, tend to give too high electron densities and a too large radius for the ionized region.

Key words: HII Regions, electron densities, dust, forbidden lines.

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J.R.D. Lépine and Marcia Erdelyi Mendes: Instituto Astronômico e Geofísico, Universidade de São Paulo, Caixa Postal 30.627, CEP 01051, São Paulo SP, Brasil.