OPTICAL OBSERVATIONS OF VERY LOW IONIZATION H II REGIONS IN THE LARGE MAGELLANIC CLOUD

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ABSTRACT

Several very low ionization isolated HII regions have been detected on a prism-objective plate of the Large Magellanic Cloud. Most of the objects show a very weak [OIII]λ5007 emission line and, on the other hand the [OII]λ3727 and [NII]λ6584 doublets are very intense. This kind of objects seem to be ideal in order to determine accurate N and O abundances, avoiding the use of large ionization correction factors in the N abundance determination.

Spectrophotometric observations of these regions have been carried out with the 4 m telescope and the 2-D Frutti spectrograph at Cerro Tololo, and with the 1.52 m and the Image Dissector Scanner (IDS) at La Silla, ESO. The wavelength range λλ3700 - 7000 A was covered Calibrated fluxes of the emission lines detected have been measured, and from these data preliminar results of physical conditions of the gas as well as some ionic abundances have been derived.

Comparisons of the observations with ionization structure models show that the effective temperatures of the ionizing stars are less than 35 000 K.

Possible abundances gradients accross the LMC are discussed.