

ABSTRACT ONLY

INTEGRAL FIELD SPECTROSCOPY OF THE TWO GIANT HII REGIONS IN THE MAIN GALAXY OF THE MINOR MERGER

AM2306-721

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We present an observational study of two giant HII regions in the main galaxy of minor merger AM2306-721, from optical spectra obtained with the GMOS+IFU of the Gemini South telescope. These HII regions show H_α luminosities and star formation rates higher than those found in normal galaxies. The electronic densities found in these regions are very low ($< 10 \text{ cm}^{-3}$). The ionization mechanisms of gas were studied. We found that models with instant stellar formation and metallicity of $0.4-1 Z_\odot$ reproduce the data points of the photo-ionized gas in the diagnostic diagrams. On the other hand, the data points of shock-ionized gas match with low velocity shock models (200-300 km/s). By using four different discrimination criteria, we determined that shock-ionized gas fraction ranges from 2% to about 30%. These values agree with the fraction predicted by numerical models. Thus, we conclude that all the mechanical energy from supernovae and stellar winds is being irradiated. Velocity dispersions of $\approx 30-40 \text{ km/s}$ are indicating that the HII regions are not self-gravitating, but ruled by external pressures. This can explain the non-circular components with respect to the main galaxy velocity field found in these regions.

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