Highlights of Spanish Astrophysics XII, Proceedings of the XVI Scientific Meeting of the Spanish Astronomical Society held on July 15 - 19, 2024, in Granada, Spain. M. Manteiga, F. González Galindo, A. Labiano Ortega, M. Martínez González, N. Rea, M. Romero Gómez, A. Ulla Miguel, G. Yepes, C. Rodríguez López, A. Gómez García and C. Dafonte (eds.), 2025

DESIRED: A database of high-quality spectra to study fundamental problems in ionized nebulae

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Abstract

We present preliminary results based on a homogeneous analysis of the DEep Spectra of Ionized REgions Database (DESIRED), a compilation of high signal-to-noise ratio optical spectra of photoionized nebulae. The database comprises more than 1800 spectra of Galactic and extragalactic H II regions and H II galaxies, and more than 200 spectra of planetary nebulae (PNe), as well as other photoionized nebulae such as ring nebulae or Herbig-Haro objects. The analysis of a first reduced version (190 objects) of this database has revealed important implications for various astrophysical problems, such as the presence of temperature fluctuations to explain the abundance discrepancy problem in H II regions, or the effects of electron density inhomogeneities on the temperature structure of the nebulae. In this poster, we focus on the potential of DESIRED to address some open problems in chemical abundances in PNe.

My poster in zenodo.org can be found here