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## Establishing the nature of X-ray binaries through infrared spectroscopy.

J. J. Rodes<sup>1</sup>, G. Bernabeu<sup>1</sup>, J. M. Torrejón<sup>1</sup>, A. Magazzù<sup>2</sup>, and E. Solano<sup>3</sup>

<sup>1</sup> University of Alicante

<sup>2</sup> Telescopio Nazionale Galileo

<sup>3</sup> Centro de Astrobiología

### Abstract

European Space Agency's INTEGRAL (International Gamma-Ray Astrophysics Laboratory) satellite have discovered new X-ray sources due to its sensitivity above 20 keV. Most of these sources suffer from high absorption and the classical blue band spectral classification region is normally not accessible. This can be overcome, however, through infrared spectroscopy. The characterisation of these systems can influence the population synthesis models currently in use. In this work, we present the first *H* and *K* band spectra for three INTEGRAL sources using the *NICS* instrument mounted on the *Telescopio Nazionale Galileo* (TNG) 3.5-m telescope. This study was complemented with infrared photometry from *UKIDSS*, *2MASS*, *WISE* and *NEOWISE* databases. Our spectra show all the significant features in emission and are, thus, consistent with a Be nature of the companions. Owing to their X-ray characteristics, these systems were classified as Be X-ray binaries. This allowed us to refine its distances to the sources using suitable calibrations that take into account the contamination by the circumstellar disk. (See poster).

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