# Identification of new hot subdwarf binary systems by means of Virtual Observatory tools

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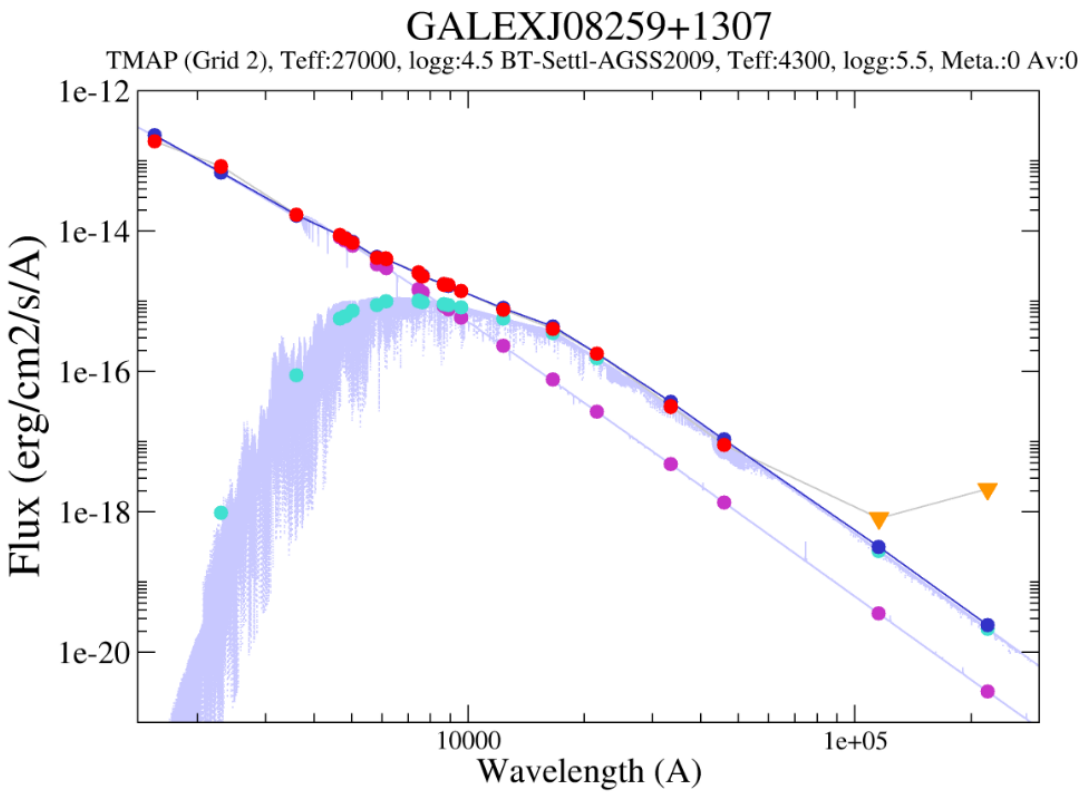


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Two-body SED fitting. Red dots are the observed photometric points while the purple and green dots represent the models that fit best.

The estimation of the binary fraction of hot subdwarfs is key to shed light on the different evolution scenarios proposed to explain the loss of the hydrogen envelope during the red giant branch phase.

In this paper we describe a methodology that shows a performance superior to other criteria proposed in the literature. Out of an initial sample of 3186 objects, we classified 2469 as single and 615 as binary hot subdwarfs. The rest of the objects (102) were not classified because of their inadequate SED fitting due, in turn, to poor quality photometry. Effective temperatures, luminosities and radii were computed for 192 singles and 42 binaries. They, in particular the binary sample, constitute an excellent dataset to further perform a more careful spectroscopic analysis that could provide detailed values for the chemical composition, masses, ages, rotation properties, or reflection effects for the shortest period systems.

The results obtained in this paper will be used as a reference for a forthcoming work where we aim to generalize binary and single hot subdwarf classification using Artificial Intelligence techniques.

E. SOLANO ET AL. MNRAS (2022). AVAILABLE HTTPS://DOI.ORG/10.1093/MNRAS/STAC1597