Databases and web-based software tools for HR-pyPopStar models and MEGASTAR library.

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Abstract

MEGASTAR is a stellar spectral atlas for MEGARA (Multi Espectrógrafo en GTC de Alta Resolución para Astronomía). MEGARA is an optical (3650 – 9750 Å), fiber-fed, medium-high spectral resolution (R = 6000, 12000, 20000) instrument in operation on the GTC 10.4m telescope. The scientific exploitation of MEGARA demanded a stellar-spectra library to interpret galaxy data and to estimate the contribution of the stellar populations. MEGASTAR atlas is focused on the highest resolution setups, HR-R and HR-I, and already has almost 1000 stars (twice spectra) thanks to the filler-type OpenTime obtained up to now in 7 semesters. We have developed a web-based tool and a database that allow working in the project (for MEGASTAR team) and making the observations and products available to the scientific community. HR-PYPOPSTAR model provides a complete set of high resolution Spectral Energy Distributions (SED) of Single Stellar Populations. The model uses the most recent high wavelength-resolution theoretical atmosphere libraries for main sequence, post-AGB/planetary nebulae and Wolf-Rayet stars. The SEDs are given for more than a hundred ages ranging from 0.1 Myr to 13.8 Gyr, four values of metallicity (Z = 0.004, 0.008, 0.02 and 0.05), and four different IMFs. We have developed a public web-based software tools and a database to manage HR-PYPOPSTAR models and to make this available to the users community.

My poster is available at https://zenodo.org/record/6989174#.Y1b5CIJBxmE