

***Gaia* study on the formation of intermediate mass stars.**

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Abstract

Herbig Ae/Be stars are intermediate mass Pre-Main Sequence objects, thus constituting a bridge between the low mass T-Tauris and the non-optical Massive Young Stellar Objects. Therefore they are a key subset for understanding the differences in formation mechanisms between the low and high-mass regimes. We have derived luminosities, optical variabilities and infrared excesses for most known Herbig Ae/Be stars (Vioque et al. 2018). In addition, by using *Gaia* parallaxes, we placed 218 of these objects in an HR diagram, which allowed us to homogeneously estimate masses and ages for the most complete sample of Herbig Ae/Be stars to date. Our main conclusions after analysing the sample are that high-mass stars mostly do barely display an infrared excess and show little optical variability. We do note that the break is around $\sim 7M_{\odot}$. This may be related to dusty disks which signpost a different or more efficient disk dispersal mechanism for high mass objects. We also found that $\sim 25\%$ of all Herbig Ae/Be stars are strongly variable. These variable sources mostly present doubly peaked $H\alpha$ line profiles, which trace edge-on disks. This project has received funding from the European Union's Horizon 2020 research and innovation programme under MSCA ITN-EID grant agreement No 676036. (See poster).