FGK and M dwarfs/giants photometric segregation using ML and SVO photometric tools

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Abstract

The Spanish Virtual Observatory (SVO) Filter Profile Service delivers information about photometric filters that have been very useful for the astronomical community in recent years, in research fields ranging from Solar System objects to cosmology. In this work, we explored the potential of adding ML to manage VO data, and compared results with a classical approach. For that, we used the Filter Profile Service and other SVO photometric tools to segregate between dwarfs and giants among FGK and M stars, using J-PAS narrow filters and by adopting machine learning techniques as the Gaussian mixture model and support vector machine. We optimised the separation between luminosity classes, reaching accuracies that classical approach could not deliver.

My poster in zenodo.org can be found here