Deep learning on galactic filaments

Annie Zavagno[*1], François-Xavier Dupé , Morgan Gray , and Eugenio Schisano

[1]Laboratoire d'Astrophysique de Marseille – CNRS : UMR7326, Aix-Marseille Université - AMU, INSU – France

Abstract

In our Galaxy, star formation is observed on spatial scales ranging from the milli to the kilo parsec. The wealth of existing data (Big Data) combined with machine learning algorithms allow us to envision the creation of an empirical model of the Galactic star formation. However, this goal is challenging and requires innovative developments on both the data preparation side and the machine learning handling adapted to such a large, multi wavelength and multi view dataset.

I will present the first results of a proof-of-concept study that aims to explore the power of machine learning (supervised learning) on a sample of Galactic filaments observed with Herschel as part of the Herschel Galactic Plane Survey. I will then present the perspectives offer by other learning methods (such as hyperspectral deep learning) for the study of Galactic star formation.

Keywords: star, formation, machine learning, big data

---

[*]Speaker