Contribution ID: **180**   Type: **Oral Presentation**

[INVITED] Cosmology in the machine learning era

Wednesday, 10 July 2024 09:00 (40 minutes)

Recent advances in deep learning are triggering a revolution across fields. In this talk, I will discuss how we can apply these techniques to tackle complex problems in cosmology and astrophysics. I will first review how we can improve our understanding of fundamental physics by constraining the value of the cosmological parameters with the highest accuracy. After reviewing the standard methods used to carry out this task I will show how deep learning can largely outperform it. I will then discuss how cosmological structures on small scales contain a wealth of information about the cosmos and how we can retrieve it, taking into account uncertainties from astrophysics phenomena such as feedback from supernovae and active galactic nuclei.

Presenter: VILLAESCUSA, Francisco

Session Classification: Cosmology & Simulations