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The application of modular neural networks in map reconstruction

vendredi 22 novembre 2024 09:50 (25 minutes)

In this presentation, we will explore the application of machine learning techniques in cosmology, focusing on the analysis of Cosmic Microwave Background (CMB) maps. Accurately calculating the tensor-to-scalar ratio from CMB data is a crucial yet challenging task, as it holds the key to understanding primordial gravitational waves and the early universe's inflationary period. I will discuss the use of informed learning with the goal of precise reconstruction, which can be readily reapplied in other areas of cosmology and astrophysics studies. These methods offer robust tools for dealing with the complexities and high-dimensional nature of data. By leveraging machine learning, we can enhance our ability to simulate, analyze, and interpret CMB observations, providing deeper insights into the universe's fundamental properties. The versatility and potential of machine learning in advancing our understanding of the cosmos will be highlighted, by showing data analysis techniques applicable in all scientific disciplines. A special focus is given to the application of physics-quided networks, their advantages and integration into the works of scientists.

Auteur principal: KARDUM, Leonora

Orateur: KARDUM, Leonora

Classification de Session: Friday morning

Classification de thématique: Fast ML : DAQ/Trigger/Real Time Analysis