

Second International Conference on the Physics of the Two Infinities



ID de Contribution: 235

Type: Non spécifié

JWST: A Game Changer for the Study of Exoplanets

vendredi 21 novembre 2025 16:25 (25 minutes)

Are we alone in the universe? For decades, scientists have sought to place our Solar System in a broader cosmic context. A major breakthrough occurred in 1995, when Michel Mayor and Didier Queloz discovered the first exoplanet orbiting a Sun-like star—a milestone that earned them the 2019 Nobel Prize in Physics. Since then, over 6,000 exoplanets have been detected, revealing an astonishing diversity: from hot Jupiters in close orbits to super-Earths, lava worlds, ocean planets—many with no equivalent in our Solar System.

While the search for new exoplanets continues, a new chapter is now being written, thanks to the James Webb Space Telescope (JWST): the characterization of exoplanet atmospheres. In this talk, I will briefly review what we have learned so far about the atmospheres of giant exoplanets, and then focus on rocky exoplanets. I will show how the measurement of the temperature of exoplanets can help determining whether or not they possess an atmosphere. In particular, I will highlight recent findings from the TRAPPIST-1 system—a remarkable system of a very small star surrounded by seven Earth-sized planets, three of which lie in the so-called “habitable zone.” I will end by looking ahead the next-generation observatories that will be specially designed to search for biosignatures in the atmosphere of Earth-like exoplanet orbiting Sun-like stars.

Auteur: Dr LAGAGE, Pierre-Olivier (CEA)

Orateur: Dr LAGAGE, Pierre-Olivier (CEA)