



SPEAKER: Nathalie Palanque-Delabrouille

TITLE: **Neutrinos and Warm Dark Matter
from a cosmology perspective**

DATE: 14 May 2019, 11:00

PLACE: 500-1-001 - Main Auditorium

ABSTRACT

The Sloan Digital Sky Survey (SDSS) has been mapping the sky for almost a decade, providing crucial information on the dark universe through measurements of BAO (baryon acoustic oscillations) and RSD (redshift space distortions). As part of the SDSS BOSS and eBOSS projects, the Lyman-alpha forest survey is a rich source of information. Because it gives access to small scales (tens of Mpc), it allows one to probe the impact of neutrino mass and warm dark matter on the clustering of matter. I will briefly recall the major goals of SDSS and introduce the quasar survey where the Lyman-alpha forest is measured. I will then present one of the strongest constraints on neutrino mass, obtained from a cosmology perspective using a combination of CMB and Lyman-alpha data. Finally, I will show how the study of clustering in the Lyman-alpha forest can also lead to competitive constraints on warm dark matter and on models of keV sterile neutrinos. These results will be placed into perspective with the upcoming DESI survey.