

Service d'Astrophysique
SÉMINAIRE

Jeudi 5 mars 11h00

CEA Saclay, Orme des Merisiers Bât 709, p 220

**STUDYING THE VERY HIGH REDSHIFT UNIVERSE
WITH GRAVITATIONAL TELESCOPES**

Johan Richard

ICC (Durham),

Characterizing the nature, physical properties, and epoch of formation of the sources responsible for cosmic reionisation is one of the latest challenges of modern cosmology. Extending the searches beyond $z \approx 6.5$ and back to ages where the Universe re-ionised requires extremely deep observations in the near-IR bands. Until the construction of JWST and 20-40 meter class ground-based telescopes, gravitational lensing surveys offer the only possibility of spectroscopically verifying the presence of an abundant population of low-luminosity sources. I will present the results of several projects targetting lensing clusters, aimed at constraining the abundance of star-forming galaxies at $z \approx 6-10$ using lensing magnification to improve the search efficiency and subsequent spectroscopic studies. These surveys combine complementary approaches, from the traditional "dropout" technique, applied on ground based images obtained with ISAAC/VLT or high resolution ACS/NICMOS imaging of the central regions of the clusters, to a systematic search for low-luminosity Lyman-alpha emitters with Keck/NIRSPEC, in the regions of maximal magnification. In spite of the uncertainties inherent to the small areas explored by these surveys, we demonstrate the practicality, over the next few years, of providing a valuable glimpse at the nature of the $z \approx 10$ Universe ahead of the commissioning of future large facilities such as the ELT and the JWST.

Le cafe sera servi 10 minutes avant

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