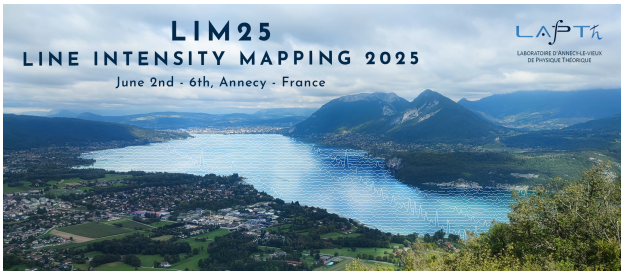

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Unveiling the EoR with LIM and 21cm-galaxy synergies

jeudi 5 juin 2025 09:40 (20 minutes)

Cross-correlating 21cm intensity maps from the SKA with galaxy surveys and other line-intensity mapping (LIM) tracers is a powerful strategy to study the Epoch of Reionization (EoR). Galaxy surveys —using Lyman-alpha, OIII, or H-alpha emitters identified through dropout techniques, grism, or spectroscopic observations — offer precise redshifts and have been shown, through mock and analytical studies within the SKA EoR science working group, to be highly promising for early detections. I will present updated signal-to-noise forecasts across different survey strategies (wide-shallow vs. deep-narrow) and instruments such as Subaru/HSC/PFS, MOONS, and the Roman Space Telescope. Complementarily, LIM of UV to infrared lines traces diffuse ionised and dusty media, offering new insights when cross-correlated with 21cm maps. I will present LIM advancements and updated prospects for cross-correlation with SKA-low measurements, focusing promising lines such as Lyman-alpha and infrared dust tracers such as PAHs. Together, these approaches offer a multifaceted view of reionization, informing models of IGM morphology, ionizing sources, and cosmology.

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