

**22 square degrees to probe the galaxy stellar mass function
and density evolutions since $z = 1.5$**

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Abstract

I will present multi-wavelength observations undertaken in the area of the VIPERS survey. They include K band photometry (with WIRCam at CFHT) over 22 deg² and deep NUV photometry (GALEX satellite) over 12 deg². Combined with the CFHTLS photometry and a large spectroscopic sample ($> 50,000$ redshifts), our photometric redshift catalogue reaches an accuracy of 3-5% out to $z = 1.5$. With $\sim 900,000$ galaxies down to $K \sim 22$ and the large volume explored (reduced cosmic variance), we provide unique constraints on the massive galaxy Stellar Mass Function (SMF) and the stellar mass density evolutions from $z = 0.2$ up to $z = 1.5$. By splitting the sample between star-forming and quiescent galaxies, we explore the different characteristics of the processes involved in the quenching of the star-forming galaxies. Our results confirm a scenario where the galaxy star formation is impeded above a certain mass. We also report a clear excess of low mass passive galaxies at low redshift, which stresses the need of at least one other quenching channel. I will show comparison with recent model predictions and discuss the link between galaxy stellar mass and Dark Matter halo mass.