Evolution of the brightest and most massive galaxies since $z \sim 6$

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Abstract

The VIMOS Ultra Deep Survey (VUDS) is a large ESO programme which just completed the observation of ~ 10000 galaxies up to $z \sim 6$ with the VIMOS spectrograph on the VLT. This is the largest and most uniform sample of spectroscopically confirmed high redshift galaxies ever assembled to date.
By studying the spectroscopic and SED–fitting derived properties of these sources we have been able to study the evolution of the star formation rate (SFR) - stellar mass ($M_\star$) relation and specific star formation rate (sSFR) of star forming galaxies (SFGs) since a redshift $z \simeq 5$ (Tasca et al. 2014, submitted). We observe a turn–off in the SFR–$M_\star$ relation at the highest mass end up to a redshift z$\sim$ 3.5, that we interpret as the signature of a strong on–going quenching mechanism and rapid mass growth. We find that the sSFR increases strongly up to $z \sim 2$ and it significantly flattens in $2 < z < 5$.
In addition, by combining VUDS spectroscopy, HST/WCF3 and ACS photometry and multi–wavelength data we are able to probe the evolutionary sequence of the progenitors of massive, compact, quiescent early type galaxies observed at later epochs in a statistically robust context (Tasca et al. in preparation).