Towards a Complete Census of Bright $z \sim 9$-10 Galaxies from the CANDELS Program: Systematic Trends in the Evolution of the UV LF from $z \sim 8$ to $z \sim 4$ and Possible Evidence for A Further Steepening at $z \sim 9$-10

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Abstract

Over the last few years, enormous progress has been made in the study of galaxies at very high redshifts, thanks to the extraordinary capabilities of the HST WFC3/IR camera, the Spitzer/IRAC instrument, and both ultra-deep and wide areas programs. Already, more than 800 probable galaxies are known at $z \geq 6$, and now the current frontier is clearly at $z \geq 9$-10. One of the most fascinating areas of study in looking at early galaxy formation has been to trace the evolution of the UV LF. While earlier studies have looked at this evolution (and systematic changes in shape) in great detail from $z \sim 8$ to $z \sim 4$, progress at $z \sim 9$-10 has been much more limited due to the small sample sizes and limited dynamical range. In this presentation, I aim to move this conversation forwards, drawing on a selection of bright $z \sim 9$-10 candidates from the full CANDELS program (building on the work of Oesch+2014) and then combine with fainter candidates from the HUDF, HUDF-parallel, and Frontier Fields parallel programs. Then, after presenting systematic trends that exist in the UV LFs from $z \sim 8$ to $z \sim 4$, I attempt to assess whether these trends continue smoothly from $z \sim 9$-10, paying particular attention to steepness and bright-end cut-off of the luminosity function.