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Presentation Requested: oral
Category: Assembly of Galaxies / Mass & Structure Evolution
Question: What are the most recent advances in submillimeter detected galaxies? Now that ALMA offers the possibility for resolving them what have we learned about their sizes, gas fractions, distribution of gas, dust and stars.

The ZFOURGE survey a significant population of massive dusty star-forming galaxies at redshifts z=3-4

We use new medium-bandwidth near-infrared images from the ZFOURGE survey to conduct a census of the massive galaxy population at $z = 3 - 4$. Using finely-sampled spectral energy distributions, we robustly identify and characterise all types of galaxies more massive than log $M > 10.6$. We study 3 subgroups in the $z = 3 - 4$ massive galaxy population: quiescent, dusty star-formers and unobscured star-forming galaxies.

Interestingly, we find that the unobscured population, which has been well-studied using dropout selection techniques, appears to make up only $\sim 15\%$ of the massive galaxy population at $z = 3-4$. Furthermore, we uncover a large reservoir of dusty star-forming galaxies that show lower specific star-formation rates compared to rare, submillimeter-selected starbursts at $z > 3$. These dusty galaxies appear to be undergoing a more typical mode of massive galaxy star formation and present ideal ALMA targets to help us understand how massive galaxies grew in the early universe.