

## X21a How can we find them? : [OIII] $88\ \mu\text{m}$ emission line and dust continuum observation of a dust-obscured galaxy at $z = 7.35$

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Over the past decades, rest-frame ultra-violet (UV) observations have revealed large samples of normal, star-forming galaxies during the epoch of reionization (EoR) at  $z > 7$  using optical and near-infrared observatories (e.g., Madau&Dickinson 2014). Since UV light is highly susceptible to dust extinction, however, it is still a major open question whether heavily dust obscured systems are being missed in large numbers at early cosmic times (e.g., Casey+18). In Fudamoto+21, we reported the first discovery of two heavily dust-obscured, main-sequence galaxies in the EoR. These galaxies are not identified from their rest-UV to optical emission, and serendipitously found as companions of UV-bright massive galaxies using their bright [CII]  $158\ \mu\text{m}$  emission lines. In this talk, we report new results from the cycle-8 ALMA observation for one of the dusty galaxies: REBELS-12-2, that shows a bright [CII] emission at  $z = 7.347$  and a tentative ( $2.8\sigma$ ) dust continuum in the previous observation. In the Cycle-8 observation, we found a bright [OIII]  $88\ \mu\text{m}$  emission line that enables further investigation of gas properties, however we did not find dust continuum detection. REBELS12-2 has been so far significantly detected only by its bright FIR emission lines, but absent from continuum, except for the faint  $\lesssim 3\sigma$  dust continuum. This suggests a miss-match between the galaxy's bright FIR emission line. We discuss properties of REBELS12-2, and implications for future galaxy surveys including JWST.