Bibliography

Refereed Publications

R. Marra, C. Churchill, **C. Doughty**, et al. Using cosmological simulations and synthetic absorption spectra to assess the accuracy of observationally derived CGM metallicities. MNRAS, in press, 2021. *10.1093/mnras/stab2896*

- This work evaluated the accuracy of observational methods of absorption line fitting when applied to simulations, seeking to determine whether the methods could allow for accurate retrieval of the true properties of the simulated absorbing gas. I performed manual fits to simulated metal absorption lines using the code VPFIT to mimic an observational analysis procedure.

C. Doughty, K. Finlator. The effects of binary stars on galaxies and metal-enriched gas during reionization. MNRAS, in press, 2021. *doi:10.1093/mnras/stab1448*

F. Hasan et al. (incl. **C. Doughty**). Evolution of CIV Absorbers I. The Cosmic Incidence. ApJ, in press, 2020. *10.3847/1538-4357/abbe0b*

- I performed extensive testing of the noise model used to generate simulated CIV absorption in order to search for systematic errors in absorption system incidence and characteristics.

K. Finlator, **C. Doughty**, Z. Cai, G. Díaz. The Faint Host Galaxies of C IV Absorbers at $z > 5$. MNRAS, in press, 2020. *doi:10.1093/mnras/staa377*

- I associated simulated metal line absorption systems with galaxies in *Technicolor Dawn*, extracted the galaxy stellar masses from a galaxy catalog and used an empirical relation to predict first the galaxy luminosity in [CII] nebular emission and then in Lyα, and determined their observability by HST and JWST.

S. Hassan, S. Adrianomena, **C. Doughty**. Constraining the astrophysics and cosmology from 21cm tomography using deep learning with the SKA. MNRAS, in press, 2020. *doi:10.1093/mnras/staa1151*

- I designed, trained, and tested neural networks to evaluate their efficacy at retrieving cosmological and astrophysical parameters from simulated 21 cm emission.

C. Doughty, K. Finlator. Evolution of neutral oxygen during the epoch of reionization and its use in estimating the neutral hydrogen fraction. MNRAS, in press, 2019. *doi:10.1093/mnras/stz2331*

C. Doughty, K. Finlator, B. D. Oppenheimer, R. Davé, E. Zackrisson. Aligned metal absorbers and the ultraviolet background at the end of reionization. MNRAS, in press, 2018. *doi:10.1093/mnras/sty156*