

# Unveiling the ionising properties of galaxies at the Epoch of Reionisation with NIRCcam

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## Abstract

In this talk I will present work done through the use of deep NIRCcam imaging from the JWST Advanced Deep Extragalactic Survey (JADES) to study the evolution of the ionising photon production efficiency,  $\xi_{ion}$ , for a sample of 677 galaxies at  $z=4-9$ . Therefore, potentially unveiling the sources of reionisation. Specifically, we use combinations of the medium and wide bands F335M-F356W and F410M-F444W to constrain emission lines that trace this quantity: H-alpha and [OIII]. We simultaneously use Prospector to fit all available photometry and infer galaxy properties.

Through this study we observe and describe how  $\xi_{ion}$  increases with redshift and UV luminosity. Additionally, we find a clear correlation between  $\xi_{ion}$  and burstiness in the star formation history of galaxies, given by the ratio of recent to older star formation, where burstiness is more prevalent at lower stellar masses. Finally, we convolve our  $\xi_{ion}$  relations with luminosity functions from the literature and different escape fraction prescriptions, to place constraints on the cosmic ionising photon budget.

By combining our results, we find that if our sample is representative of the faint low-mass galaxy population, galaxies with bursty star formation are efficient enough in producing ionising photons and could be responsible for the reionisation of the Universe. I will finish this talk by presenting new results obtained with a stellar-mass complete sample composed of  $\sim 30,000$  galaxies at  $3 < z < 9$  in GOODS-S.