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Cold gas removal by low-luminosity radio jets: case of B2 0258+35

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The interplay between the nuclear activity and the interstellar medium (ISM) of galaxies plays an important role in their evolution: the gas accreting onto the dormant supermassive black hole turns it into an active galactic nucleus (AGN) and the ensuing activity is believed to starve the host galaxy of the fuel needed to form stars. The contribution of radio-loud AGN to this feedback effect is yet to be well understood, more so that of low luminosity radio AGN. These make up a significant fraction of the radio-loud AGN population, but are generally believed to be too weak to cause any significant impact. I will present a detailed study of the conditions of cold gas in one such low-luminosity radio AGN B2 0258+35. Our recent NOEMA CO(1-0) study has shown the presence of a fast outflow consisting of 75% of the cold gas in the central region of this galaxy. In combination with the numerical simulations of jet-ISM interaction, our study demonstrates that even low-luminosity radio sources are capable of single-handedly impacting the gas in the galaxy significantly, highlighting the importance of this class of radio AGN in the context of feedback.

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