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LOFAR-GAMA cross-matching - radio emission from dusty early-type galaxies

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Dust is a key component of the interstellar medium. The mechanism of dust removal from galaxies has not been completely understood yet. I will address this issue by the analysis of LOFAR data over GAMA fields. The starting point for this analysis is a previously selected sample of two thousand dusty, Herschel-detected, early-type galaxies (ETGs). They are elliptical galaxies in which star formation has a much lower rate than what their masses could imply, yet an unnaturally large amount of dust is observed. What is most important, dust removal from these galaxies is evident. The main goal of this analysis is to determine dust removal mechanism responsible for this loss. The cross-match between the LOFAR and GAMA catalogues resulted in over two hundred detections of radio emission in studied ETGs. Radio emission sheds more light on the possible activity of the galactic center since there is an observed radio excess vs optical/IR emission. A comparable time scale is noticeable between dust removal and the evolution of radio excess from these galaxies and it may suggest increased activity in their centers. AGNs are candidates for a sufficiently effective dust removers from galaxies.

keywords

cross-matching, AGN, early-type galaxies, interstellar medium, dust removal

In-person or online?

in-person

Career level

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