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Outflows vs star formation in nearby AGN from the MAGNUM survey

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AGN outflows are believed to play a major role in shaping the properties of host galaxies, by sweeping away the gas and quenching star formation (negative feedback).
In this framework our MAGNUM survey aims at investigating in detail the interplay between AGN activity and star formation processes in nearby active galaxies which, due to their vicinity, are the ideal laboratories to carry out such a study. The sample comprises ten famous nearby Seyfert galaxies, such as Circinus, NGC 1365 and NGC 4945.
Thanks to its unique combination of large field of view and spectral coverage, MUSE allowed us to map the ionised gas down to ~10 pc in several nebular emission lines revealing ubiquitous kpc-scale outflows, whose properties (e.g. velocity, mass outflow rate, kinetic rate etc⋯) as a function of distance from the active nucleus were measured. Furthermore, we inferred the outflow 3D shape and intrinsic physical properties with kinematic modelling.
We found evidence of star formation induced by AGN outflows indicating positive feedback. Additionally, recent results from our survey reveal the presence of star formation even within the outflow itself.
Moreover, by exploiting ALMA and Chandra X-ray observations we study the gas in its different phases and get unique insights on the properties of the outflows and of the ISM.

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