

## Multi-wavelength characterisation of activity in nearby S0 galaxies.

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### Abstract

We provide a comprehensive characterization of the activity of present-day S0s throughout both the broad-band PC1–PC2 spectral classifier and the conventional narrow-line BPT/WHAN ones, contrasting the different types of activity classes they define, and present an alternative diagram that exploits the concordance between WHAN and PCA demarcations. The analysis is extended to the mid-infrared, radio and X-ray wavelengths by cross-matching our core sample with data from the WISE, FIRST, XMM–Newton, and Chandra surveys. This has allowed us to carry out a thorough comparison of the most important activity diagnostics in the literature over different wavebands, discuss their similarities and differences, and explore the connections between them and with parameters related to star formation and black hole accretion. We find evidence that the bulk of nebular emission from radio and X-ray detected S0–Seyfert and LINER systems is not driven by star birth, while the dominant ionising radiation for a number of LINERs might come from post-AGB stars. These and other outcomes from the present work should be transferable to other morphologies.

My poster is available at <https://zenodo.org/record/7043218#.Y4cynuzMLt1>