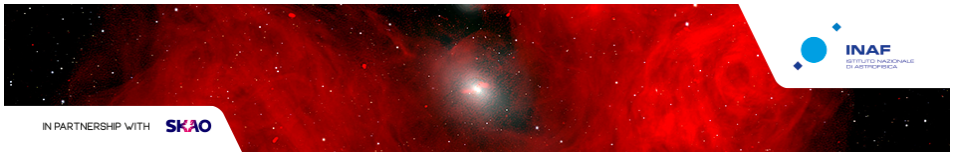

Contribution ID: **66** Type: **not specified**

Heavily obscured AGN detection with current and future deep radio surveys

Thursday, 30 November 2023 12:30 (20 minutes)

Obscured Active Galactic Nuclei (AGN) are the largest population of accreting supermassive black holes. The demographics of the most heavily obscured nuclei, however, is still largely uncertain, especially at early cosmic times, where they may dominate the whole AGN statistics.

A promising way to select heavily obscured AGN is through their radio emission, which is largely unaffected by obscuration and, for sufficiently powerful nuclei, can be revealed in excess of that produced by star formation.

In this talk, I will present a detailed investigation of the effectiveness of radio selection to discover heavily obscured AGN.

We first extend AGN population synthesis models of the cosmic X-ray background to the radio band. Then, we make predictions for the major extragalactic fields covered by both deep X-ray and radio data. Our results show that, while X-ray selection is generally more effective in detecting unobscured AGN, radio selection is significantly more effective in detecting the most heavily obscured, Compton-thick AGN. Thousands of Compton-thick nuclei are indeed expected to hide among the sources of popular radio catalogs.

I will finally present expectations for the number of AGN to be detected by the continuum surveys of the Square Kilometer Array Observatory (SKAO). The SKAO is expected to detect more than 2000 AGN at z>6, and even some tens at z>10: half of them are expected to be Compton-thick.

Reasearch area

Extragalactic Continuum (galaxies/AGN, galaxy clusters)

Primary author: Mr MAZZOLARI, Giovanni (DIFA-Unibo ; INAF-OAS)

Co-authors: PRANDONI, Isabella (Istituto Nazionale di Astrofisica (INAF)); Dr BRUSA, Marcella (Universita' di Bologna & INAF-OAS); MIGNOLI, Marco (Istituto Nazionale di Astrofisica (INAF)); GILLI, Roberto (Istituto Nazionale di Astrofisica (INAF))

Presenter: GILLI, Roberto (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Parallel - Galaxy Evolution & AGN