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LFAA experiences in Italy - 20'

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The Italian contribution within the SKA1-LOW instrument and in particular on the Low Frequency Aperture Array (LFAA) Element has been important since the conception of the Square Kilometer Array project.

The Low Frequency Aperture Array is a key component of the SKA. Combining 128 thousands of antennas into up to 2048 stations, with multiple beams and an instantaneous frequency coverage of 50 to 350 MHz, it allows to observe this spectral region with unprecedented spatial and spectral resolution, but constitutes also a formidable technical challenge.

In this talk, I will present the experience that the INAF group has gained in the design of various parts of LFAA from the antenna to digitizer, including special test benches as UAV system. We participated to the system engineering aspects of the project, with a complete integrated solution for the signal processing sub-element. In the last year a prototype array (AAVS1) was deployed at the SKA site. Experience gained in installation and operation of this facility has been essential in finalizing the instrument design.

National collaborations with Universities, research institutes and industries participating to those activities, will be highlighted during the talk.

Primary author: MONARI, Jader

Co-authors: ALDERIGHI, Monica (Istituto Nazionale di Astrofisica (INAF)); BOLLI, Pietro (INAF - OAA); SCHILLIRO', Francesco (Istituto Nazionale di Astrofisica (INAF)); FIERRO, Davide; BELLI, Carolina (Istituto Nazionale di Astrofisica (INAF)); SCHIAFFINO, Marco (INAF - IRA); PUPILLO, Giuseppe (Istituto Nazionale di Astrofisica (INAF)); Mr MATTANA, Andrea (Istituto Nazionale di Astrofisica (INAF)); Dr PERINI, Federico (IRA - INAF); RUSTICELLI, Simone (Istituto Nazionale di Astrofisica (INAF)); CHIARUCCI, Simone (Istituto Nazionale di Astrofisica (INAF)); Ms TABELLINI, Alice (IRA-INAF); Dr POLONI, Marco (IRA INAF); Dr DININNI, Paola (OAA INAF); NALDI, Giovanni (IRA-INAF)

Presenter: MONARI, Jader

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