SKA and EMC: The Need for Science and Engineering Dialogue

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Abstract

The tutorial will examine the science ambitions of the SKA and the influence they have in framing the engineering developments and host sites. Or should that be the engineering and site realities and how they constrain the science aspirations? The engineering challenges, directed by the science goals, regularly push the design teams into unchartered waters. Functional, deadline-driven dialogue between international partners, where contractors have to watch their profit lines, sets part of the boundaries. The presentation will be illustrated with some contemporary developments, which will be related to broader SKA project progress, especially with respect to telescopes, aperture arrays, development metrology, deployment and lightning/RFI protection. The over-arching theme of the tutorial will be the components of the SKA project and instrument design which maximise the EMC and radio astronomy science. Some experience from European sites and South Africa's MeerKAT will underpin the reflections. Project success will not be possible without an intimate dialogue between radio astronomers, engineers and contractors.