

Astronomy & the SKA

How do you specify the radio telescope of the future?

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Abstract

The Square Kilometre Array (SKA) radio telescope project was born global. When built, it will be a revolutionary instrument, having multiple fields of view and a huge increase in sensitivity compared with today's radio telescopes.

The international SKA project involves a collaboration of scientists and engineers with expertise encompassing all aspects of radio astronomy. As a consequence there is a huge range of ideas regarding how to engineer the SKA, what science it must perform and exactly how the engineering/science dichotomy is best handled. In the extremes, the challenge ranges from building the "cleverest" engineering solution to an instrument heavily-gearred to achieve a key science goal. Moreover, neither aspect – science or engineering – is a fixed target: the SKA must evolve alongside the latest astronomical discoveries and technical capabilities. Even as key science goals are agreed, could they be "old hat" by 2019 – the planned date for a fully-operational SKA?

In this paper I discuss how the SKA consortium is tackling these "moving targets" and how the science-engineering interaction works in this international project.