
Results from EMBRACE@Nancay: An Ultra Wide Field of View Prototype for SKA

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Résumé

A revolution in radio receiving technology is underway with the development of densely packed phased arrays for radio astronomy. This technology can provide an exceptionally large field of view, while at the same time sampling the sky with high angular resolution. Such an instrument, with a field of view of over 100 square degrees, is ideal for performing fast, all-sky, surveys, such as the "intensity mapping" experiment to measure the signature of Baryon Acoustic Oscillations in the HI mass distribution at cosmological redshifts. The SKA, built with this technology, will be able to do a billion galaxy survey.

The Nancay radio observatory is a major partner in the development of dense phased arrays for radio astronomy, working closely with The Netherlands Foundation for Radio Astronomy (ASTRON). The joint project is called EMBRACE (Electronic MultiBeam Radio Astronomy Concept). With significant funding from European Commission FP6 project SKADS, two EMBRACE prototypes have been built: One at Westerbork in The Netherlands, and one at Nancay. These prototypes are currently being characterized and tested at the two sites. Conclusions from the EMBRACE testing will directly feed into the SKA and will have a decisive impact on whether or not dense array technology is used for the SKA. I will present the current status and initial results from the Nancay EMBRACE station.

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