A new scientific era for the Northern Cross

Tuesday 4 June 2024 17:50 (5 minutes)

The Northern Cross(NC) is a transit radiotelescope composed of two branches located in Medicina(BO). The North-South branch was upgraded in recent years and is now involved in many projects, included the study of transient phenomena, particularly Fast Radio Burst(FRBs). Important results have been already obtained, discovering new FRBs and monitoring several repeaters.

The NG-Croce project, financed by the Next-Generation-EU funds within the PNRR, foresees the refurbishment/upgrade of the East-West branch that will greatly improve the capabilities of the radiotelescope in terms of field-of-view, sensitivity and resolution.

To support and fully exploit the activities of the NC, the project includes activities for the parabolic dish of Noto (32m) as well as CHORD (Canadian Hydrogen Observatory and Radio-transient Detector) instrument in Canada. At the end of planned activities, Italy will have a national network of sensors (SRT will be included), to carry out a monitoring of transient phenomena with state-of-art technology and performance. The scientific data will be available to the international scientific community and used by doctoral students and young researchers, to increase their knowledge and astrophysics training. An archive will also be set up to make accessible, reusable and interoperable the data under the FAIR rules.

The presentation will show the upgrades of the Northern Cross, particularly focusing on the installation of new focal lines, receivers, a new CED and the implementation of innovative algorithms both for signal processing and for data analysis. The presentation will also describe the upgrades planned for Noto parabolic dish and the synergies with CHORD.

sessioni congresso

Tecnologie avanzate e strumentazione

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