

رتبه اول خارجی *Foreign First Winner*

Project Title:

Giant Metrewave Radio Telescope
(GMRT)

Researcher:

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Country:

India



عنوان طرح:

شبکه گسترده رادیو تلسکوپ نجومی

محقق:

دکتر گویند سواراپ

کشور:

هندوستان

Abstract:

GMRT consists of 30 numbers of fully steerable parabolic dishes, each of 45-metre diameter in size (Encl. 3 for photos). Twelve of these have been placed in a compact array of about 1Km x 1 Km in size. The remaining 18 antennas are placed along three 14Km long arms of a "Y"-shaped array. GMRT has been designed to operate in eight different frequency bands centred at 38, 153, 233,325, 611 1420, 1611 and 1665MHz. Received signals, with a 32MHz bandwidth, are Fourier transformed in real time and then cross-multiplied and processed by a computer system to produce radio maps. State-of-art electronics has been fabricated in India for GMRT.

Under my direction, a novel and innovative design has been developed for the 45-m diameter antennas of GMRT, called SMART (Stetched Mesh Attached to Rope Trusses). The reflecting surface of the parabolic dished is made of thin stainless steel wire mesh, made 0.55mm wires, which is supported by rope trusses tide to 16 Parabolic shaped steel frames. Thus The wind loading on the antennas is minimized leading to considerable economy in the weight and cost of the dishes. Thus, it has possible to build parabolic dishes of the GMRT at a cost of about one-fifth of the conventional dishes built else where in the world.