

Expansion of a Y-shaped array antennas for radio astronomy

ABSTRACT

Observing celestial objects is common in radio astronomy. The Giant Meterwave Radio Telescope (GMRT) is one of the world's latest telescopes of its kind. The aim of this paper is to extend the number of array antennas and optimize configurations by changing the position of antennas for getting low sidelobes and high u-v plane coverage. Initially, the expansion along three arms configuration was studied and then expanding it to spiral shape. The results show about 98.5 percents less coverage of GMRT without expansion compare to the extended GMRT. The spiral expanded shows ability to cover the u-v plane more than expansion in three arms by sixteen percents.

Keyword: Array antennas; GMRT; Interferometry; u-v plane