



The College of Graduate Studies and the College of Science Cordially Invite You to a
Master Thesis Defense

Entitled

ASSEMBLY AND DEPLOYMENT OF A 256-ELEMENT RADIO ARRAY FOR SPACE SCIENCE

By

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Abstract

Within the scope of this project, a 256-element Radio Interferometer Array will be assembled and deployed as part of the “UAEU Radio Astronomy Pathway Project”, which is jointly supported by the College of Science and the National Space Science & Technology Centre (NSSTC) at the UAE University. This antenna array will be deployed at the NSSTC site, and it will serve as the central part of the ground-based radio observations facility to be utilized for multi-disciplinary space science research at the UAEU. The facility will be capable of making low frequency radio observations of astronomical sources and events, measurements for spacecraft tracking, atmospheric studies, planetary studies and more. The project work begins with the design, preparation, and placement of a steel mesh ground plane for the array, followed by the extensive assembly and integration of 256 bowtie dipole, dual polarization antennas. The next step will be to design the spatial configuration of the array and deploy the array in that configuration. The elements of the array will then be interfaced with 16 beamformers on site. After that, the site infrastructure will be connected with the backend hardware in the NSSTC ground facilities control room. In the end various connectivity and deployment tests will be carried out to validate readiness of the array for scientific observations.

Keywords: Radio Array – Radio Interferometry – Radio Astronomy – Instrumentation