

PhD Oral Defense

Date: 24 November 2020 (Tuesday)

Time: 2:30pm

Thesis Title

Wideband End-Fire Millimeter-Wave Antenna Arrays



Mr. Ao Li (Supervisor: Prof. Kwai-man Luk)

Abstract

This thesis presents a series of wideband antenna arrays with end-fire radiation for millimeter-wave (MMW) applications. All of the presented antenna arrays are linear arrays and exhibit high-gain unidirectional radiation characteristics to overcome the high propagation loss of electromagnetic waves at MMW frequencies. All of the presented antenna arrays are based on substrate integrated techniques, including the substrate integrated waveguide (SIW) and the substrate integrated coaxial line (SICL), and therefore these array designs all have the advantages of low insertion loss of feed network, low cost of manufacturing, and ease of integration with other planar circuits. For these antenna arrays, two aspects are focused on: the wideband dual-polarization property and the wideband phased beam-scanning property. The common end-fire radiation characteristic enables the presented antenna arrays to be attractive for different terminal devices in MMW wireless communications.