

Novel On-Chip Antenna Structures and Frequency Selective Surface (FSS) Approaches for Millimeter Wave Devices

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Abstract:

This paper presents novel on-chip antenna structures and provides new on-chip circuit concepts that may be implemented as part of standard integrated circuit fabrication processes for wireless integrated circuits of the future. As wavelengths of wireless local area networks (WLANs) and personal area networks (PANs) shrink to millimeter lengths at 60 GHz and above, interconnectivity issues and cost/scale requirements will require these new approaches for built-in on-chip antennas. This paper highlights advancements in both the integrated circuits and microwave technology research communities, and presents a number of promising areas of research. Finally, we describe an experimental probe station that has been developed at The University of Texas for the testing and characterization of novel on-chip antennas and distributed components.