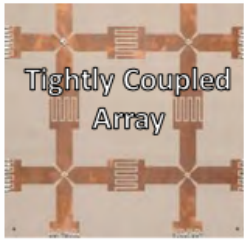


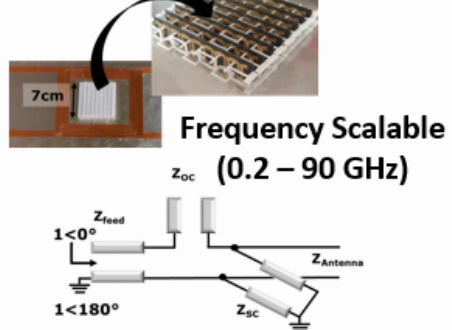
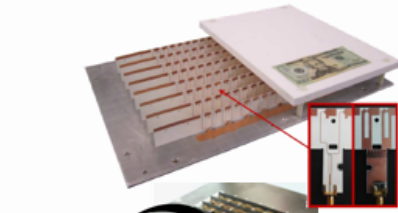
Recent UWB Antenna Designs (UHF – W Band)

Issues Resolved by TCDA

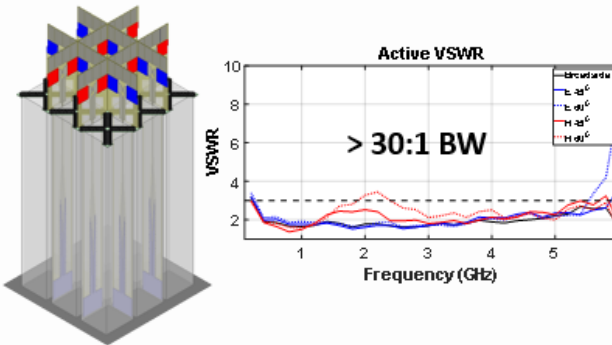
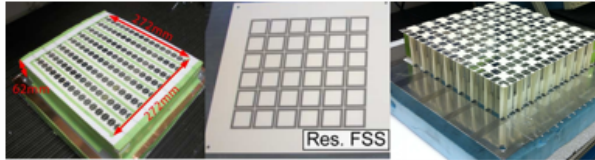
1. Compact Feeding across UWB
2. Extremely Wide Bandwidths
3. Wide Spatial Scanning
4. Packaged Arrays
5. Millimeter-Wave Arrays
6. Deployable Arrays



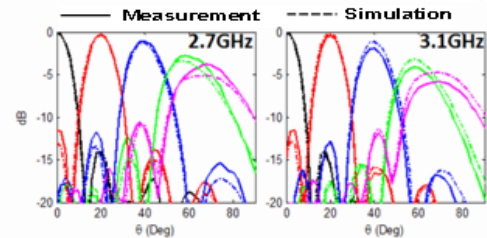
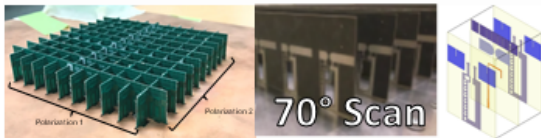
(1) Compact Baluns



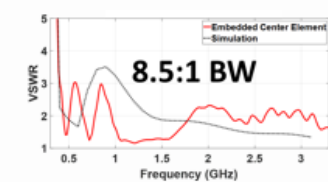
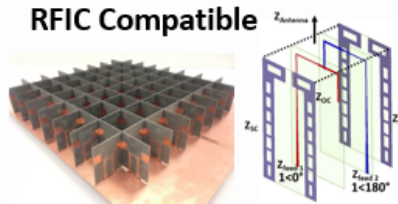
(2) Extremely Wide Bandwidths



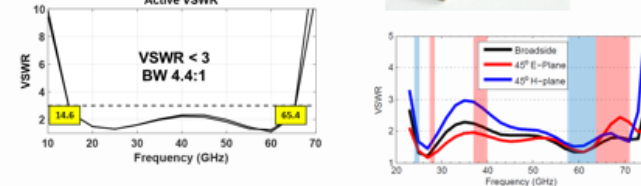
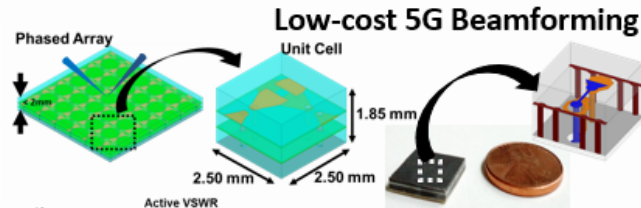
(3) Wide Scanning Capability



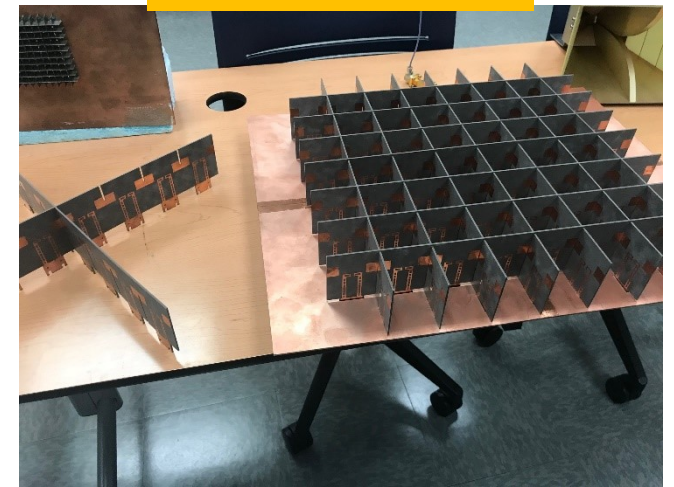
(4) Differential Feeds



(5) mm-Wave Printed Arrays



Differential fed - TCDA



Task Reconfigurable and Tunable Antenna Array

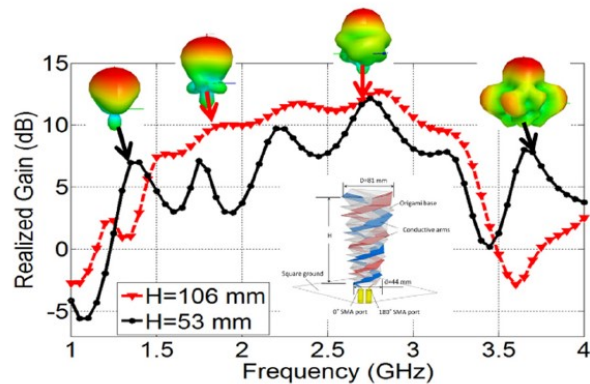
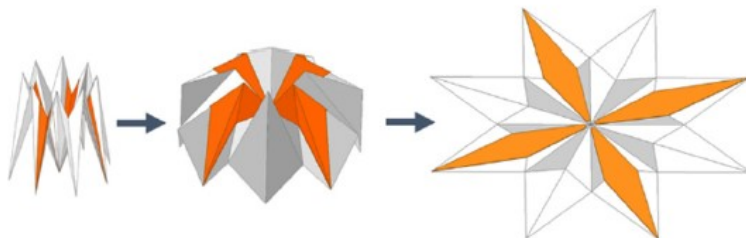
Antenna Shape Reconfiguration

Developing fully **reconfigurable** antenna arrays in shape and in antenna performance, by leveraging our previous expertise in origami and antenna array design

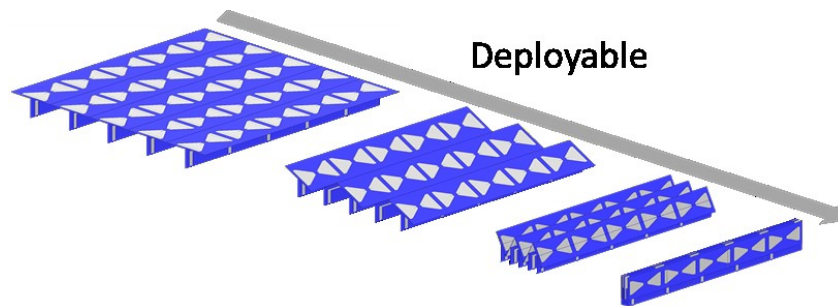
Shape configurability achieved by designing antenna arrays on

- Textiles (varactors on textiles)
- Flexible substrates
- Thick-origami materials (with PCM switches)

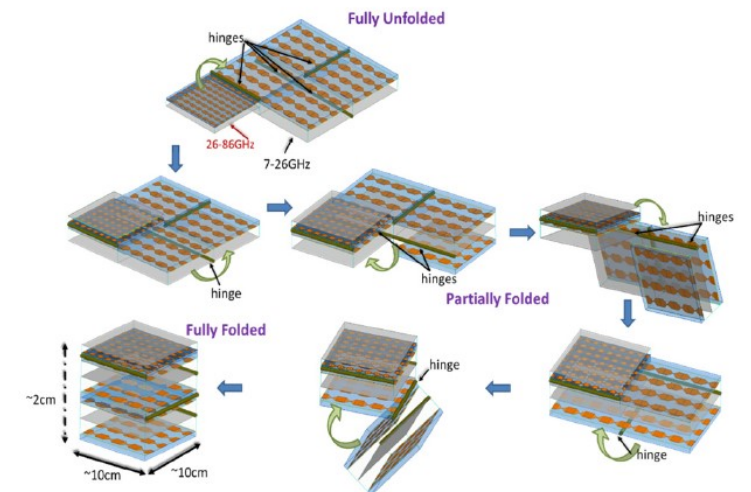
Flexible Substrates



Varactors on textiles



PCM switches on thick substrates



Journal Publications:

1. D. K. Papantonis and J. L. Volakis, "[Dual-Polarized Tightly Coupled Array With Substrate Loading](#)," in IEEE Antennas and Wireless Propagation Letters, vol. 15, pp. 325-328, 2016
2. M. H. Novak, F. A. Miranda and J. L. Volakis, "[Error Correction in Ku-Band Phased Array Measurements](#)," in IEEE Antennas and Wireless Propagation Letters, vol. 16, pp. 1084-1087, 2017
3. M. H. Novak and J. L. Volakis, "[Ultrawideband Antennas for Multiband Satellite Communications at UHF–Ku Frequencies](#)," in IEEE Transactions on Antennas and Propagation, vol. 63, no. 4, pp. 1334-1341, April 2015
4. J. Zhong, C. W. Lee, D. Papantonis, A. Kiourti and J. L. Volakis, "[Body-Worn 30:1 Bandwidth Tightly Coupled Dipole Array on Conductive Textiles](#)," in IEEE Antennas and Wireless Propagation Letters, vol. 17, no. 5, pp. 723-726, May 2018
5. E. Yetisir, N. Ghalichechian and J. L. Volakis, "[Ultrawideband Array With 70° Scanning Using FSS Superstrate](#)," in IEEE Transactions on Antennas and Propagation, vol. 64, no. 10, pp. 4256-4265, Oct. 2016
6. E. Yetisir, C. Chen and J. L. Volakis, "[Wideband Low Profile Multiport Antenna With Omnidirectional Pattern and High Isolation](#)," in IEEE Transactions on Antennas and Propagation, vol. 64, no. 9, pp. 3777-3786, Sept. 2016
7. N. K. Host, C. Chen, J. L. Volakis and F. A. Miranda, "[Ku-Band Traveling Wave Slot Array Scanned Via Positioning a Dielectric Plunger](#)," in IEEE Transactions on Antennas and Propagation, vol. 63, no. 12, pp. 5475-5483, Dec. 2015
8. E. Yetisir, C. Chen and J. L. Volakis, "[Low-Profile UWB 2-Port Antenna With High Isolation](#)," in IEEE Antennas and Wireless Propagation Letters, vol. 13, pp. 55-58, 2014