Dr. Tom Wells - Curriculum Vitae 2017

TOM WELLS, President World Radomes Inc.

Education: B.S. Physics Cum Laude – California Institute of Technology, 1972
M.S. Physics – University of Maryland, 1974
Ph.D. Physics/Nuclear Theory – University of Maryland, 1978

Experience: 2006 to Present – President, World Radomes Inc, Gainesville, FL
1998 to 2005 – Vice President of Engineering, AFC, Ocala, FL
1993 to 1997 – Head of Electromagnetics, ESSCO, Concord, MA
1978 to 2003 – Senior Research Scientist, GTRI/STL, Atlanta, GA

Narrative: WRI – World Radomes Inc. was founded in 2006 by Dr. Wells to pursue opportunities to advance the State of the Art in ground based radomes. WRI has successfully pursued a three pronged program to advance the SOTA in space frame radomes: 1) Development of numerically optimized tuned joints by proprietary FDTD code. 2) Extensions of forward scattering measurements to validate scattering by said joints. And 3) implementation (in process) of Agile Manufacture to facilitate application & site specific design/manufacture. Along the way, WRI obtained exclusive license to use permanently hydrophobic Raydel fabrics in space frame radomes - in this context: faceted radomes comprised of triangular panels. WRI has the technology to manufacture both permanently tensioned thin membrane radomes and non-delaminating sandwich panel radomes. Either are permanently hydrophobic, zero maintenance, and the product of Agile Manufacture by 5-axis CNC. Agile Manufacture facilitates application specific sizing & truncation of the radome without the cost or delay of mold-making One off radomes & even site specific panelizations compliant with INTELSAT-type sidelobe specifications are not a problem. WRI denotes this product line as the Z-Class Radome. 1st article panels have been manufactured and tested.

Dr. Wells has developed at WRI the State Of The Art (SOTA) FDTD analysis & optimization of tuned radome joints and a SOTA facility for a) the measurement of radome joint forward scattering patterns and b) free space microwave material characterization.

AFC & ESSCO – From 1993 through 1997, Dr. Wells was head of the electromagnetics group at ESSCO in Concord, MA & from 1998 to 2005 VP of Engineering at AFC in Ocala, FL. In both capacities, duties included accurate & innovative radome design validated by measurement. Design obtained by a comprehensive suite of algorithms analyzing all pertinent radome EM performance parameters in terms of basic measurements of joint scattering and EM material characterization;. Dr. Wells resigned from AFC in 2005 and founded WRI, World Radome Inc, in 2006.

GTRI – From 1978 to 1993 Dr. Wells worked as a senior research scientist in the Signature Technology Lab at Georgia Tech Research Institute (GTRI) in Atlanta, GA with primary focus on EM characterization of materials with application to design of absorbers and radomes.

Relevant Publications:

Over the course of his career, Dr. Wells has authored numerous papers, licensed software, and, at GTRI, taught short courses in radome technology, microwave material characterization, and design optimization. Pertinent publications include:

1. R. Shavit, T. B. Wells and A. Cohen, " Forward Scattering Analysis in a Focused Beam System", IEEE Trans. Antennas Propagat., Vol. 46, pp. 563-569, April 1998.
2. R. Shavit, T. B. Wells and A. Cohen, "Scattering Analysis of Arbitrary Shaped Cylinders in a Focused Beam System", IEE Proceedings-Microwaves, Antennas and Propagation, Vol. 145, No. 4, pp. 289-294, August 1998.

3. “Measurement of Transmittance and Scattering of Radome Membranes from 30 to 1000 GHz” IEEE MTT-Trans. Vol.45, No. 12, Dec. 1997 (7 pages), M.N. Afsar, I. Thackov, T. B. Wells.
4. “Analysis of the Electromagnetic Performance of Metal Space Frame and Other Large Radomes” ICARSM, Voronezh, May 1997, T. B. Wells, J. Sangiolo, A. Monk, A. Manz, A. Cohen.
5. "Radome for Large Millimeter and Sub-Millimeter Wave Antenna Systems" ICAP '97, Edinburgh, April 1997,T. B. Wells, A. Monk, J. Sangiolo, A. Manz, A. Cohen
6. "Limits on Diffractive Scattering by Woven Radome Membranes up to 900 GHz" SPIE Proceedings Vol. 2842, 1996, M. N. Afsar, I Thackov, T. B. Wells.
7. “Far Field Measurement of Radome Scattered Field” ICAP ’95, Einhoven, April 1995, T. B. Wells, A. Cohen.
8. “Experimental Validation of Pattern Effects Analysis for a Multi-Panel Radome” QM&W Antenna Symp., London, 1994, T. B. Wells, A. Cohen.
9. "Considerations in the Measurement of Hot Boresight Error," Proceedings of the 20th Symposium on Electromagnetic Windows, Ga. Tech., Sept. 1992, T. B. Wells.
10. "An Intercomparison of Measurement Techniques for the Determination of the Dielectric Properties of Solids at Near Millimeter Wavelengths, " NPL Report DES 115, ISSN 0143-7305, (October 1991), coauthor.
11. "Beam Diffraction Effects in Millimeter Wave Material Characterization," 14th International Conference on Infrared and Millimeter Waves, Wurzburg, Republic of Germany, October 1989, T. B. Wells and M. Glidewell.
12. "The Measurement and Analysis of Microwave Transmission, Reflection for Ablating Flat Panels," Proceedings of the Seconds DoD Electromagnetic Windows Symposium, (AEDC-TR-87-21), Tullahoma, Tenn., Oct. 1987, T. B. Wells.
13. "Gaussian Beam and Cavity Techniques in Permittivity and Permeability Measurements," Millimeter Wave/Microwave Measurements and Standards for Miniaturized Systems Conference, Redstone Arsenal, Alabama, November 1986, R. L. Moore and T. B. Wells.
14. "An Examination of Material Parameter Uncertainties Arising From Statistical Measurement Errors," IEEE Instrumentation/Measurement Technology Conference, March 1985, Tampa, FL, T. B. Wells.
15. "Microwave and Millimeter Impedance Measurements of Electrically Thin Materials," IEEE Instrumentation/Measurement Technology Conference, March 1985, Tampa, FL, R. L. Moore, T. B. Wells, A. Dean.
16. "Millimeter Complex Permittivity and Permeability by Open Cavity Resonator and Waveguide Reflectometer," 1984 IEEE Instrumentation and Measurement Technology Conference Proceedings, pp. 28-32, Long Beach, CA, (17-18 January 1984), T. B. Wells, R. L. Moore, J. P. Montgomery, and A. S. Dean.
17. "Parametric Evaluation of the Fabry-Perot Interferometer in Millimeter Permittivity and Permeability Measurements," Eighth International Conference on Infrared and Millimeter Waves, Conference Digest M5.4, Miami, FL (12-17 December 1983), T. B. Wells.
18. "Monopulse Sidelobe and Tracking Error Models for Analyzing Antenna Performance in the Presence of Shipboard Thin Cylindrical Obstacles," Final Technical Report, Contract No. N0024-78-C-7157, Purchase Order No. 10686, September 1981, coauthor.
19. "Near-Field Measurements of Broad Beam Antennas," IEEE AP-S Symposium Digest, Los Angeles, California, (June 1981), T. B. Wells.