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## IEEE Microwave Theory and Techniques Society Washington DC/Northern VA Chapter

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### Millimeter Waves - Myths and Reality

**H. Bruce Wallace**

**MMW Concepts LLC**

**Havre De Grace, MD**

**Date:** Tuesday, April 17, 2007

**Time:** Lecture 7:00 pm

**Place:** American Center for Physics, College Park, MD [directions](#)

**Cost:** The lecture is free.

**Optional Dinner:** Please join the speaker and the membership for dinner at the lecture site. Dinner Cost \$15.00. Reception 5:30 pm, Dinner 6:00-7:00 pm

**RSVP for dinner only** by Friday April 13 to Roger Kaul, 301-394-4775, [r.kaul@ieee.org](mailto:r.kaul@ieee.org)

**Abstract:** Over the years, interest in millimeter-wave (MMW) technologies has varied greatly depending on the constantly changing military needs or the opportunities in the commercial sector. During those periods of upswing in popularity, a spate of both rediscovery and reinvention takes place as individuals and organizations new to the field begin investing time and money to address system concerns. There are common misconceptions and erroneous data references that continue to appear that set back the progress of the development of MMW systems.

This presentation, originally presented as a Plenary Talk at the 2006 SPIE Defense and Security Symposium, will discuss three issues that crop up in MMW applications that are commonly addressed through the application of hearsay and superficial analysis. These issues involving scaling target signatures, eliminating multipath, and atmospheric attenuation, will be discussed both from an analytical and historical perspective.

**Bio:** Mr. H. Bruce Wallace is an internationally recognized expert on millimeter-wave (MMW) and sub-MMW technology. He received the BA degree in physics from the Johns Hopkins University in 1971 and the MSEE degree from the University of Delaware in 1984.

Following his bachelor's degree he entered the US Army as a Lieutenant in the Ordnance Corps. In 1974, after serving in the US Army, he joined the Ballistics Research Laboratory where he investigated the application of millimeter-wave techniques to weapon systems. Key among these studies were MMW sensor systems which combined radar and radiometry into a single sensor which became the primary sensor for the SADARM artillery delivered system, which was used effectively in the most reason Iraq war. For his work he received the US Army Research and Development Award in 1981. He subsequently led his research team to establish the Army's High Resolution Radar Imaging facility at the Aberdeen Proving Grounds, MD, which provides

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state-of-the-art imaging of ground platforms.

From 1996 to 2004 he was the Chief of the RF & Electronics Division where he was responsible for the research that led to development of the Army's Multifunction Radio Frequency System (MFRF) which has become a key electronic component in the Future Combat Systems (FCS). He was also responsible for the numerous programs investigating passive MMW Imaging, Ultra-Wideband Radar, and Frequency Control technology. He is currently President of his own firm consulting in MMW and Sub-MMW technology. He is a Fellow of the IEEE Geosciences and Remote Sensing Society.

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### Previous Talks:

[David Wikner February 13 2007](#)  
[— Millimeter wave Imaging](#)

[Dr. Peter Siegel Nov 14 2006](#)  
[—"Terahertz Technology in Inner and Outer Space"](#)

[Dr. James Komiak Sep 12 2006](#)  
[—"Design and Performance of Microwave and Millimeter Wave High Efficiency Power Amplifiers"](#)

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