

The IEEE Albuquerque Section's Joint Chapter
presents

"A Standard for Characterizing Antenna Performance in the Time Domain"
by Dr. Everett G. Farr

at its November 30, 2011, dinner meeting
Four Hills Country Club, 911 Four Hills Road SE in ABQ.
5:45 pm social gathering
6:30 pm dinner
7:30 pm Dr. Farr will speak

There are already standards for characterizing antenna performance in the frequency domain, but no such standard exists in the time domain. This becomes a challenge if, for example, one wishes to buy or sell an antenna with a specified performance in the time domain. In the frequency domain, one normally uses antenna gain, but this offers little information about the antenna's time domain performance.

In order to characterize an antenna in the time domain, a function should have five characteristics. It should fully describe antenna performance with equations that are as simple as possible. It should describe antenna performance in both transmission and reception. It should describe antenna performance in both the frequency and time domains. The function should be simply related to frequency domain standards, such as gain, realized gain, and antenna factor. Finally, it should be simply related to quantities that are measurable in the laboratory, typically with an oscilloscope. We propose a function that satisfies all five criteria.

About the Speaker

Everett Farr received the B.S. degree in physics in 1980 and the Ph.D. degree in electrical engineering in 1985, both from the University of Illinois at Urbana-Champaign. In 2008, he formed Farr Fields, LC, to explore new opportunities in electromagnetic effects and sources. In 1991 he formed Farr Research, Inc., where he developed and optimized ultra-wideband impulse radiating antennas in a wide variety of configurations. These included simple IRAs with solid reflectors, collapsible IRAs with fabric reflectors, ultra-compact deployable IRAs for space applications, IRAs mounted onto a parachute, and IRAs based on lenses. He developed time domain antenna measurement techniques, and he built a time domain antenna range that is effective in characterizing both wideband and narrowband antennas. He studied the effect of frequency selective surfaces (FSSs) on UWB sources. He developed several high-voltage UWB devices, including V-dot cable sensors and directional couplers. He developed the folded horn antenna, which has a high gain/volume ratio. Many of these antennas are now available as commercial products.

Dr. Farr is incoming chairman of URSI/USNC Commission E and is a former chairman of the IEEE AP/MTT/EMC joint chapter in Albuquerque. He is a co-recipient of the 2006 IEEE John Kraus Award, with citation reading "For the development of novel and innovative ultra-wideband antenna concepts that have enabled a new area of electromagnetics." He is a Summa Foundation EMP Fellow, with citation reading "for theoretical design and experimental

development of Impulse Radiating Antennas." He received the Best Applied Paper Award at the 1990 Nuclear Electromagnetics Conference for his work on the balanced transmission-line wave sensor; and again at the 2002 AMEREM Conference for his work on IRAs.

Reserve your seat at the talk

To reserve a seat for dinner, please contact Mike Harrison at harrisonmgabq@comcast.net or 239-2663 **by noon Tues., Nov. 29, 2011.**

A reservation is not required if you will attend the talk only. Members of the IEEE Albuquerque Section and Sigma Xi are invited to attend. The social gathering will begin at 5:45 pm at Four Hills Country Club, 911 Four Hills Road SE in Albuquerque. Dinner will be served at 6:30 pm, and Dr. Farr will begin the discussion at 7:30.

For those joining the dinner, the Joint Chapter asks that you pay \$20 (\$10 for IEEE student members) to cover the cost of the really good meal they have arranged (prime rib, garlic mashed potatoes, salad, green beans, and crème brulee. A vegetarian entrée is available by request at time of Rsvp.

Reservations or cancellations can be accepted until noon Tuesday, November 29.

Please don't be a no-show for dinner. By the stated deadline for reservations and cancellations, we must provide the Four Hills Country Club with a final count of dinners required, and we must pay the full \$35 cost for each dinner reserved. So it is important that we receive all reservations and cancellations by the deadline.

If you cannot attend, in spite of your best efforts, please call or email the treasurer to make arrangements to pay the \$35 cost for each dinner that you reserved.

Joint Chapter Officers, 2010:

Chairman	Michael Harrison	(505) 846-0956	harrisonmgabq@comcast.net
Vice-Chair	Hal Wagnon	(505) 298-7350	Hal.Wagnon@IEEE.org
Treasurer	Leland Bowen	(505) 867-2731	Leland.Bowen@IEEE.org
Secretary	W. Scott Bigelow	(505) 286-1888	Scott.Bigelow@IEEE.org