



IEEE Seattle EMC Chapter and MTT/AP Joint Chapter Meeting Announcement

### Antenna and Shielding Fundamentals Workshop

*This is a free workshop open to IEEE members and guests, but you must register **IN ADVANCE** no later than Friday, June 8 to ensure adequate seating and catering*

**Date:** Friday, June 15, 2018

**Time:** 11:45 am Registration and complimentary lunch  
12:35 pm Announcements by Seattle EMC Chapter Chair Dennis Lewis  
12:45 pm Two presentations with short break in between plus Q&A  
*(See presentation abstracts and speaker bio below)*  
3:30 pm Adjourn

**Parking:** There is limited parking at T-Mobile. Attendees are encouraged to carpool. Please park at Lot A (Crossroads Bible Church - 15815 SE 37th St, Bellevue, WA 98006). A shuttle will take you to the T-Mobile building with the meeting room. Note the shuttle will pick up at 11:30 am and again at 11:45 am. (It is 15 min driving time from the Crossroads lot to T-Mobile.)

**Location:** T-Mobile, 3625 132nd Ave SE, Bellevue, WA 98006 (NO PARKING is available at this location)  
Newport 2 – 1st Floor – Conference Room 1B

**Register:** [Click here to register on line.](#) Note seating is limited and will be filled on a first come, first served basis.

**Contact:** IEEE EMC Chapter Vice-Chair Janet O’Neil, ETS-Lindgren, cell 425-443-8106, email [j.n.oneil@ieee.org](mailto:j.n.oneil@ieee.org)

*Thank you to our meeting sponsors!*



## TECHNICAL PROGRAM

*By Robert C. Scully, NASA, Houston, Texas, USA*

### Antenna Factor – A Deceptively Simple Parameter

**Abstract:** Antennas used for EMI measurements are employed as transducers that convert field strength to antenna terminal voltage. While the concept is quite simple, the reality is that antenna factors are affected by a great many characteristics of the measurement setup, including the presence or absence of a reflective “ground” plane, the height of the antenna above the ground or chamber floor, the type of antenna, the uniformity of the field being measured, the distance between the antenna used for measurement and the source being measured, and the impedance match between the antenna and its load. Multiple authors over time have investigated this parameter and the various characteristics that affect its determination for a particular measurement. Antenna factors have been defined for both receiving and transmitting. This presentation will provide a basic definition of receive and transmit antenna factors, and discuss some of the setup characteristics that may affect them.

### Shielding Fundamentals

**Abstract:** Various approaches have been employed over time to describe electromagnetic shielding and its effectivity, but perhaps the most well known relies heavily on theoretical development by S. Schelkunoff. Developed based on impedance relationships at interfaces, observed and/or expected behavior can be described using simple equations. Related discussions focus on engineering aspects of shielding including design and magnetic effects.

## SPEAKER BIOGRAPHY



**Dr. Robert Scully** holds a Ph.D. from the University of Texas at Arlington in Electrical Engineering with strong emphasis in electromagnetics. He is an IEEE Fellow, a registered Professional Engineer in the state of Texas, a licensed commercial (PG-12-27194) and amateur (N9RCS) radio operator, holds various Electromagnetic Compatibility (EMC) certifications from the University of Missouri-Rolla (now Missouri University of Science and Technology) and iNARTE, and is a member of Tau Beta Pi and Eta Kappa Nu. Dr. Scully holds a Federal GS15 rating, and is the Johnson Space Center Electromagnetic Compatibility (EMC) Group Lead Engineer, serving as the technical lead for EMC at the Center. He is also the lead for the Community of Practice for EMC within the Agency. Dr.

Scully supports NASA’s major programs including the International Space Station, the Multi-Purpose Crew Vehicle, and the Commercial Crew Development Program, providing expertise and guidance in development of tailored electromagnetic compatibility specifications, including control plans, interference control testing methodologies, ESD control, and lightning protection and test. Dr. Scully has been active in the IEEE EMC Society for over 20 years and is a Past President of the Society. He was Vice President of Technical Services for multiple terms, and previously served in all Officer Positions for the Technical Activities Committee, Technical Committee 1, and Technical Committee 4. He is currently the Chair of the Education Committee, and is the founder and Chair of the Galveston-Houston EMC Society Chapter.