38th Annual Symposium of the Antenna Measurement Techniques Association

Preliminary Program

AMTA 2016

October 30 - November 4

Austin, TX

www.amta2016.org

Hosted by

ETS-LINDGREN
An ESCO Technologies Company

Co-Hosted by

KEYSIGHT TECHNOLOGIES

TEXAS
The University of Texas at Austin

TEXAS A&M UNIVERSITY

Join Us in Austin!

On behalf of the organizing committee, I would like to invite you to Austin, Texas for the 38th Annual AMTA Symposium. We are excited about the high quality of technical papers, the invited speakers on the technical program, and the unique social events that are planned.

The technical program kicks off on Sunday, October 30 with the Short Course, "New Frontiers in RF Material Measurements" presented by Dr. Lydell Frasch, Dr. Michael Havrilla and Dr. Peter Collins. Back by popular demand, this short course was first presented at the AMTA Symposium in 2010. Since then, there have been numerous advances in this area, so this year's update is definitely due! The technical program and exhibition start on Monday and will run throughout the week. We will end our time together with the Friday Technical Tour at ETS-Lindgren's world headquarters in nearby Cedar Park, Texas.

Join your AMTA colleagues for a new 5K run or walk Sunday morning. The Welcome Reception sponsored by NSI-MI Technologies follows that evening. The Monday night event, sponsored by MVG, features a Halloween theme. Wednesday evening is the Annual Awards Banquet, sponsored by TICRA, NSI-MI Technologies and ETS-Lindgren. Our companion tours include visits to charming Fredericksburg, unique music, food and art venues in downtown Austin, plus a Texas wine tasting.

October is a wonderful time to visit Austin with its moderate temperatures, abundant sunshine, and minimal rainfall. The Hyatt Regency Austin is located downtown on Lady Bird Lake and within walking distance to numerous restaurants, theaters, shopping, and other attractions. Enjoy walking or bicycling on the many waterfront pathways, or take the Thursday "Bats and BBQ" dinner cruise to see the city come to life from the water.

Registration for AMTA 2016 is now open. Early registration ends on September 16. Please complete the form in this booklet or visit **www.amta2016.org** to register and for more information.

On behalf of Host ETS-Lindgren and Co-hosts Keysight Technologies, the University of Texas at Austin, and Texas A&M University, we look forward to seeing you in Austin!

Janet O'Neil, AMTA 2016 Chair

Future Symposia

2017 Oct. 15 - 20, Atlanta, GA, Hosted by NSI-MI
2018 Nov. 4 - 9, Williamsburg, VA, Hosted by Altair Engineering Inc.
2019 Oct. 6 - 11, San Diego, CA, Hosted by Microwave Vision Group
2020 TBD, Boston, MA, Hosted by CST

Interested In Exhibiting?

Visit the AMTA 2016 website for up-to-date exhibitor information, benefits, and floor plans. You can also download a copy of the Exhibitor Packet from the website. For more information on exhibiting at AMTA 2016, please contact Yvonne Grosek of Three Dimensions at 714-600-6465 or **ygrosek@threedimensions.com.**

Currently, the following companies plan to exhibit at AMTA 2016:

Altair Engineering
Anritsu Company
AP Americas, Inc.
ARC Technologies, Inc.
Benefield Anechoic Facility (BAF) USAF
Chamber Services, Inc.
CompuQuest
Comtest Engineering BV
Copper Mountain Technologies
CST of America, Inc.
ECS-Federal
EMSCAN
ETS-Lindgren, Inc.
Keysight Technologies
Micro-Coax, Inc.
Microwave Engineering & Manufacturing Corporation
MVG
NSI-MI Technologies
Orbital ATK
PPG Aerospace/Cuming Microwave
QuarterBranch Technologies, Inc.
Remcom
Rohde & Schwarz
Sprinkler Innovations
STAR Dynamics Corporation
TDK RF Solutions
TICRA
Virginia Diodes

Symposium Benefits

- High-quality technical papers presented on a continuous basis over four days
- Sunday Short Course entitled, "New Frontiers in RF Material Measurements"
- NEW Sunday "Boot Camp" on antenna and related measurement fundamentals
- Students from local colleges will be hosted for Student Day, November 1
- Exhibits showcasing antenna and measurement related products and services
- The latest innovations in antenna and RCS measurements
- Industry leading companies related to antenna measurements products and services
- Networking opportunities with industry experts
- Unrivaled social events around Austin
- Daytime companion tours to Austin area highlights

Welcome to Today's Austin

Attractions
Austin is the capital of Texas, home to the University of Texas at Austin and gateway to the beautiful Hill Country. As the Live Music Capital of the World®, the city has a soundtrack all its own. More than 250 live music venues flourish with rock, indie, pop and Tejano. Austin is also home to a wonderful ballet company, world-class museums, one-of-a-kind shopping, and beautiful outdoor spaces. And it's okay if you don't have time to fit it all in, you can just plan to come back for another visit.

Dining and Nightly Entertainment
Top notch restaurants with legendary barbeque and farm-to-table cuisine will whet your appetite. When it's time to dine, Austin offers visitors hundreds of options. Want entertainment? Just take a walk down 6th Street and follow your ears to the music that most appeals to you.

Business Climate
Did you know some of America's leading companies are located in Austin? A growing mecca for high tech companies, Austin is home to Dell, IBM, Advanced Micro Devices, Apple, AT&T, Freescale and National Instruments. In nearby Dallas/Fort Worth, you'll find industry giants Lockheed Martin, Raytheon and Texas Instruments.

Austin is a city of high tech and high energy. Energize yourself for business or pleasure – Austin style!

www.austintexas.org

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Three Dimensions (Mary Ellen Vegter, Theodora Dirksen, and Yvonne Grosek)

NEW! AMTA Boot Camp

Announcing the 1-day AMTA Boot Camp course on antenna and related measurement fundamentals, Sunday, October 30. Topics will include an introduction to general RF measurements and overviews of antenna, RCS, EMC/EMI, and material measurements. Live hands-on demonstrations complement the material presented. Visit **www.amta2016.org** for the complete agenda and more information.

About The Hotel

Hyatt Regency Austin

208 Barton Springs Road
Austin, Texas, USA, 78704
Tel: +1 512 477 1234
www.austin.hyatt.com

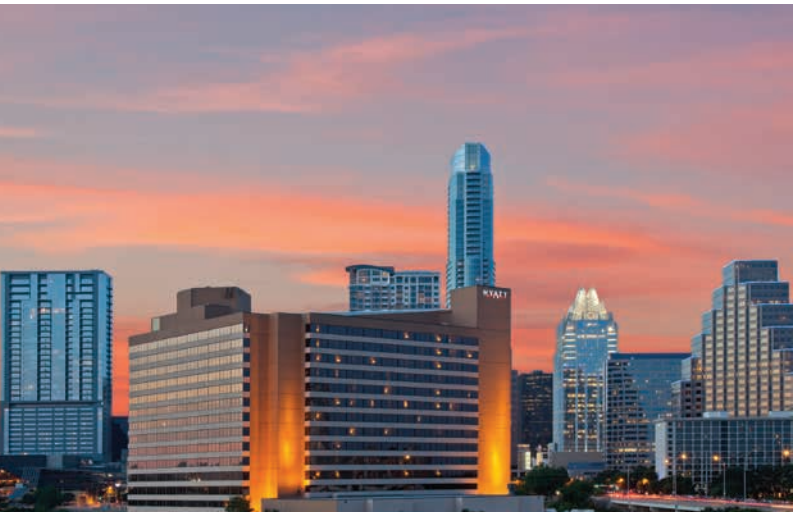
$199 USD plus tax for single or double occupancy, available on a first come, first served basis for reservations made by September 30, 2016. The AMTA rate includes complimentary high speed internet access in each guest room.

NOTE: A limited number of rooms are available at the government per diem rate. Early reservations are recommended.

Standard reservation:
https://resweb.passkey.com/go/amta2016

Government rate:
https://resweb.passkey.com/go/govrate2016

Enjoy all the city has to offer while staying at the Hyatt Regency Austin! Discover the perfect balance between the city's vibrant downtown energy and the resort-like tranquility of the Hyatt Regency Austin. Set on the shore of Lady Bird Lake, this ideally located AAA Four Diamond hotel lets you experience the best of this diverse city famous for live music, rock-star dining and innovative ideas all while enjoying the authentic hospitality that makes this Austin hotel a Hyatt. Find your own rhythm in downtown Austin where live music, good food and outdoor fun blend into a unique mix of smart and hip. Catch music legends and the newest additions to the scene at nearby entertainment districts, including SoCo, Warehouse District, 2nd Street and 6th Street. Cross the Congress Bridge, home to over a million bats, and find yourself by the Texas State Capitol.



Social Calendar

NEW! 5K Run or Walk!

Sunday, October 30
7 a.m. stretch time/7:30 a.m. start time
$25, includes race bib, water bottle, and finisher medal

Ready. Set. Go! An AWESOME way to start the symposium week is to join your AMTA colleagues for a good-morning 5K. Our host hotel is conveniently located on one of the most popular and beautiful river running paths in Austin. During our morning jaunt (run or walk!), you will get a memorable sunrise view of the Texas State Capitol building, catch up with the University of Texas rowing team as they begin their workouts along the banks of the Colorado River, and perhaps catch a glimpse of our local migratory celebrities, the Mexican free-tail bats as they return to the Congress Street bridge for their daytime naps. This will be an outing you won't want to miss!

Welcome Reception

Sunday, October 30, 6 - 7:30 p.m.
Sponsored by: NSI-MI
Complimentary to all registered symposium participants and their companions.

Please join us for appetizers, cocktails, and some casual socializing while catching up with old friends and making new acquaintances!

Monday Night Outing

October 31, 5:30 - 10 p.m.
$85 per person
Sponsored by: Microwave Vision Group

Join us for a one-of-a-kind Halloween celebration at the Palm Door on Sabine. Located in the heart of downtown Austin, just 15 minutes from the Hyatt Regency Austin, the Palm Door on Sabine features a unique, urban loft environment that is reserved exclusively for AMTA! With 14' high vaulted ceilings, a long built-in bar, hardwood floors, and distinctive indoor and outdoor spaces, the relaxed environment is a perfect fit for our focus on fun. A sumptuous dinner will be served at multiple buffet stations. You won't leave hungry! Seating will be reception style so you can mix and mingle with AMTA symposium attendees all night. Entertainment includes an exciting DJ playing popular tunes and long-time classics. Get some exercise and enjoy dancing indoors or take it easy with some quiet time outdoors visiting with your colleagues under twinkling lights on the deck. Prizes will be awarded for best costumes!

Halloween attire encouraged (optional).

Student Day

Tuesday, November 1, 11 a.m. - 7 p.m.

Hyatt Regency Austin Hotel
Complimentary to all student attendees

Dinner sponsored by Star Dynamics

Student Day will provide an opportunity for local college students to get a taste of antenna engineering and related disciplines by interacting with practicing engineers in a variety of venues. As in previous years, students will be able to tour vendor exhibits, sit in on papers, and enjoy a free meal while listening to a presentation targeting issues relevant to those soon entering the engineering profession. In addition, AMTA will host a hands-on Student Day Design Contest. This will give students an opportunity to show off their engineering skills to recruiters (they should bring their resumés) and have fun at the same time. Doug Kramer is this year's Student Day Coordinator. Students who have an interest in participation or have questions may contact him at 512-531-2687, or email him at **studentday@amta.org.**

Awards Banquet

Wednesday, November 2, 6 - 9:30 p.m.

Included in full registration, Extra Ticket $75 per person

The Awards Banquet will feature a cocktail reception with light entertainment, a seated dinner, and a presentation of annual awards and bingo prizes.

Sponsored by:
NSI-MI, ETS-Lindgren and Ticra

Thursday Night Event

November 3, 5:30 - 8 p.m.

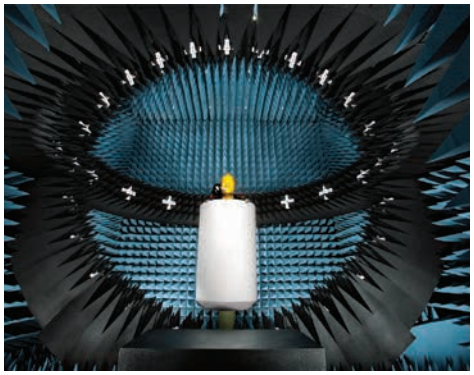
Lone Star Riverboat Cruise on Lady Bird Lake, $50 per person

Austin is known for its unique character and natural beauty. Enjoy an evening of Bird-Watching, Austin-style on our "Bats and BBQ" tour. In the heart of the Capital City, nestled under the Congress Avenue Bridge, the largest colony of Mexican free-tailed bats in the United States make their nightly sunset exodus for a dinner of 30,000 pounds of insects. You'll have front row seats for "the show" in a double decker, electric-powered paddle wheeler that cruises along Lady Bird Lake. You'll be able to take in the picturesque skyline and the natural beauty of the city. This is a sunset you'll never forget! While you take in the sights, enjoy a casual dinner served during the cruise along with a no-host bar. The cruise is limited to 50 people and subject to cancellation if required minimum is not met. Boarding begins at 5:10 p.m. and the boat leaves from the Hyatt shoreline at 5:30 p.m. sharp.

Friday Technical Tour

November 4, 9:30 a.m. - 3 p.m.

Meet in the hotel lobby
Includes: Transportation and Lunch, $45 per person



ETS-Lindgren in Cedar Park is home to one of the nation's premiere acoustic test labs. Bet you weren't expecting that! Here you will see three accredited labs in the areas of Acoustics, Calibration and Wireless testing. Not only is the facility home to one of the largest EMC antenna calibration facilities, it is home to various wireless/RF test chambers and two acoustic test chambers.

The accredited Acoustic Research Laboratory (ARL) - NVLAP lab code 100286-0 - offers standard and customized test programs to answer client-specific product R&D needs or ensure product compliance. Multiple acoustic test chambers, state-of-the-art measurement equipment with customized software, and expert staff are ARL hallmarks.

ETS-Lindgren's global headquarters also showcases the wireless test solutions that the company has pioneered. In December 2002, ETS-Lindgren became the first CTIA Authorized Test Lab (CATL) for mobile station radiated performance testing. The wireless test systems enable continuous R&D.

The tour also includes a 3m semi-anechoic EMC chamber used for testing electronics products, various absorber treatments and lighting solutions, as well as the A2LA accredited calibration lab featuring a 50m x 80m ground plane for antenna calibration to several international standards.

Lunch features an "All You Can Eat" buffet, Texas style!

Thursday Night Event

COMPANION TOURS

Complete Austin Experience
Monday, October 31
10 a.m. - 2 p.m.

$65, Includes transportation, guide, sightseeing tour, BBQ bites, craft cocktail, gratuities

Austin is a city known for music, food, and being a little bit wacky. Discover all of this and more on a fun, interactive city tour of the Live Music Capital of the World®. Cruise through colorful neighborhoods including the University of Texas and 6th Street District while your local guide shares captivating tales of the memorable characters and unique events that make Austin the city that's "Keepin' it Weird." Learn how legends like Willie Nelson and Stevie Ray Vaughan shaped Austin's claim as a music Mecca, as well as getting the scoop on the current live music scene. History will come alive as you explore the Texas State Cemetery and the illustrious State Capitol complex. Become an artist at Graffiti Park, a very cool local spot. Discover why Texas is famous for BBQ as you meet a real BBQ pit master and learn the secrets of the smokehouse. Then enjoy tastings to decide for yourself. You will finish off your day with a personal margarita tutorial and the recipe for Austin's original cocktail.

Fredericksburg and Texas Wine
Tuesday, November 1
10 a.m. - 4:30 p.m.

$80, Includes transportation, guide, sightseeing tour, wine tasting, small food pairings, gratuities
Lunch on own

Austin is the perfect city base to explore many of the state's other attractions. You'll see the charming Texas Hill Country, the historic German town of Fredericksburg, and discover delicious local wines. Take in gorgeous views as you cruise in your luxury bus through the most beautiful part of the state. Discover Fredericksburg, an idyllic historic town bursting with remnants of its German heritage. Shopping opportunities vary from cowboy hats to Christmas ornaments. Stroll at your own pace, enjoying the shops and perhaps some authentic German cuisine. We'll end the tour with a tasting of Texas wines which are known for their Mediterranean varietals, and then take a photo stop in the Luckenback, Texas dancehall.

Sip 'n' Paint: Discover Your Inner Artist
Wednesday, November 2
10 a.m. - 3:30 p.m.

$70, Includes transportation, guide, paint lesson, all supplies, wine with appetizers, gratuities
Note: This tour has a 14 person maximum

Discover your inner artist at a local art studio. You will learn how anyone can become the next Leonardo da Vinci as these talented instructors assist you through a step-by-step painting class. But first, we'll begin with an Austinite's favorite meal – tacos – catered from a local eatery. Pour yourself a glass of wine as the painting begins. This art studio is designed for the novice, so it will be a breeze to create a masterpiece. Paintings will be dry by the end of class and are yours to keep. These unique souvenirs can lay flat in a suitcase so they are easy to pack for your flight home.

Foodies' Tastings of Austin
Thursday, November 3
10 a.m. - 2 p.m.

$70, Includes transportation, guide, tastings, gratuities

Austin is a city that loves food. Discover why we spend so much time eating on this foodies' tour of South Austin. Sights include Zilker Park, iconic South Congress Avenue, and the charming 1st Street District. You will make stops at favorite local eateries including amazing food trucks. The food trucks are located throughout the city and serve everything from tacos to lobster rolls. As you enjoy your stop-by-stop lunch, your guide will share secrets behind the architecture, the people, and the happenings that make this neighborhood a favorite for locals and tourists alike. After lunch, enjoy free time on South Congress Avenue with its array of eclectic shops, restaurants, boutiques, antiques, music venues and galleries.

AMTA 2016 SHORT COURSE

Short Course
Sunday, October 30
9 a.m. - 5:30 p.m.

New Frontiers in RF Material Measurements

Profound advancements in manufacturing and technology have significantly altered the landscape of material and antenna measurements. The primary goal of this short course is to explain, exploit, and demonstrate these recent advances for the benefit of the measurement community.

First, a brief review of fundamental material measurement concepts will be provided. Next, new advancements in manufacturing and technology (e.g., additive/subtractive manufacturing) and new-generation (e.g., multiport, multi-source, nonlinear) network analyzers are explored. Next, new materials and measurement techniques enabled by the recent advances in manufacturing and technology are provided. A demonstration segment follows in order to encourage a hands-on learning environment. The short course concludes with a discussion of future frontiers and challenges.

Course Outline

- Introduction and Motivation
- Fundamental Concepts of Material Measurements
  - o Review of Basic Material Measurement Concepts
  - o Measurement Best Practices
- New Frontiers in Material Measurements
  - o New Advancements in Manufacturing and Material Fabrication
- Additive/Subtractive Manufacturing
- Computational Resources
  - o New Advancements in Measurement Equipment
- Multiport (N>2) Network Analyzers
- Multi-Source Network Analyzers
  - o Mixed-Mode S-Parameters
- Non-Linear Network Analyzers
  - o X-Parameters
- High Frequency Network Analyzers
- Portable Network Analyzers
  - o New Technology-Inspired Materials and Measurement Techniques
- Theory and Measurement of Complex Media
- High Temperature Material Characterization Techniques
- Focused Beam Material Characterization
- Nonlinear Material Characterization
- Antenna and RCS Measurement Using Robotic Arms
- Computational Electromagnetic Material Characterization
  - o Demonstrations
- Biaxial Material Characterization Technique
- Portable Measurements
- Multiport Measurements
- Future Frontiers and Conclusions

Instructors:

Dr. Michael J. Havrilla is a Professor of Electrical Engineering at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. Dr. Havrilla's teaching and research interests are in the areas of theory, measurement and applications of anisotropic and bianisotropic media. Dr. Havrilla received the B.S. degree in Physics and Mathematics in 1987, the M.S.E.E. degree in 1989 and the Ph.D. degree in electrical engineering in 2001 from Michigan State University, East Lansing, Michigan. He is an URSI Commission B member, an IEEE senior member, an AMTA member, and a member of the Eta Kappa Nu and Sigma Xi honor societies.

Dr. Lydell L. Frasch is a Technical Fellow of The Boeing Company, St. Louis, Missouri. Dr. Frasch's research interests include the electromagnetic characterization of materials, electromagnetic scattering phenomena and antenna measurement. Dr. Frasch received the B.S. degree in Physics in 1979 and the B.S. in Electrical Engineering in 1980 from the South Dakota School of Mines and Technology, Rapid City, South Dakota. He received the M.S. and Ph.D. degrees in Electrical Engineering from Michigan State University, East Lansing, Michigan, in 1983 and 1987, respectively. Dr. Frasch is an AMTA senior member, an IEEE senior member, and a member of ASTM International Committee D9 on electrical insulating materials, Tau Beta Pi, Eta Kappa Nu, Sigma Pi Sigma, and Sigma Xi.

Dr. Peter J. Collins is a Professor of Electrical Engineering at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. Dr. Collins' research interests are in the areas of low observables, electromagnetic materials design, remote sensing, electromagnetic theory, computational electromagnetics, and signature metrology. Dr. Collins received the B.A. degree from Bethel College, Minnesota and the B.S.E.E. degree from the University of Minnesota, both in 1985, the M.S.E.E. and Ph.D. degrees from the Air Force Institute of Technology, Ohio in 1990 and 1996 respectively. He is a senior member of the IEEE, a senior member and the immediate past president of the AMTA, and a member of the Eta Kappa Nu and Tau Beta Pi honor societies.

Keynote Speakers

Monday, October 31
8:15 - 9 a.m.

Dr. Brian Kent
Applied Research Associates,
Fairborn, Ohio

Dr. Robert Scully
NASA, Houston, Texas

Protecting the Space Shuttle from Itself

On 1 February, 2003, the Space Shuttle Columbia disintegrated over Texas and Louisiana as it re-entered Earth's atmosphere, killing all seven crew members. A lengthy and meticulous investigation determined that during the launch a piece of foam insulation broke off from the Space Shuttle external tank and struck the left wing of the orbiter. The resulting damage allowed hot atmospheric gases to penetrate and destroy the internal wing structure, which caused the spacecraft to become unstable and slowly break apart. After the disaster, Space Shuttle flight operations were suspended for more than two years, similar to the aftermath of the Challenger disaster. As a major part of the Return to Flight effort and subsequent operations, NASA developed the capability to use radar to observe the Shuttle stack as it ascended into orbit, the purpose of which was to monitor debris events that occurred during that critical phase of flight. To make this work required extensive coordination between NASA, the Navy, and the Air Force. To add to the mix, although the Shuttle was certified for flight operations, it had no measured performance indicating it could safely be exposed to radar frequency energy sufficiently strong enough to provide useful information during the ascent. This presentation will relate the story of why it was necessary to monitor for debris events, and how it was demonstrated that radar could be used successfully for that purpose.

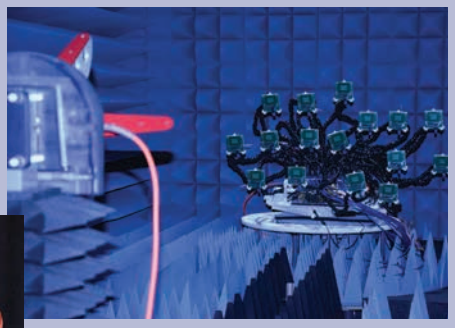
Dr. Brian M. Kent recently joined Applied Research Associates as a Senior Scientist and S&T Lead for Electromagnetics, Radio Frequency, and Sensing Systems. Previously, he was the Chief Technology Officer, Air Force Research Laboratory, Wright-Patterson Air Force Base, Ohio. Dr. Kent is a Fellow of the IEEE, of the AMTA and of the Air Force Research Laboratory. He co-serves as an Adjunct Professor (Michigan State University) and as an IEEE APS Distinguished Lecturer. Dr. Kent was a 2009 Meritorious Presidential Rank Awardee.

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 and immediate Past President of the IEEE EMC Society. 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 supports NASA's major programs including the International Space Station, the Multi-Purpose Crew Vehicle, and the Commercial Crew Development Program.

Please see **www.amta2016.org** for complete information on the presentation and speaker biographies.

Lunch & Learn

Thursday, November 3
11:30 a.m. - 1:30 p.m.



Professor Gregory H. Huff
Associate Professor of Electrical and
Computer Engineering,
Texas A&M University

Collaborative Beamforming from Swarming UAS

Unmanned aircraft systems (UAS), otherwise known as drones or UAVs, have become indispensable tools in security, entertainment, and research but we are just beginning to understand their collective capabilities in unstructured swarms and clusters. This talk will examine some of the pioneering research into the development of experimental test-beds, analysis tools, and reconfigurable antenna technologies developed to study the behavior of these unique systems-of-systems.

Gregory H. Huff has a range of experience in applied electromagnetics and multidisciplinary systems engineering. He has received numerous accolades for his work in this area, including reconfigurable RF and microwave antennas as well as other adaptive electromagnetic devices to support UAS control and communication in networked clusters of UAS. Prof. Huff is also active in the design of super-configurable systems for UAS, where he has focused on integrative autonomous vehicle concepts for air, ground, and water applications that integrate electromagnetic subsystems into structural or aerodynamic systems. This talk will focus on the development of MEDUSA, which is a computer vision-assisted phased array controller that was engineered to study the behavior of unstructured volumetric arrays in morphing clusters.

Prof. Huff received his B.S., M.S., and Ph.D. degrees in Electrical Engineering from the University of Illinois at Urbana-Champaign, in 2000, 2003, and 2006, respectively. He has been with the Electromagnetics and Microwave Laboratory in the Department of Electrical and Computer Engineering at Texas A&M University in College Station, TX since 2006. He received the Presidential Early Career Award for Scientists and Engineers (PECASE) awarded through the Department

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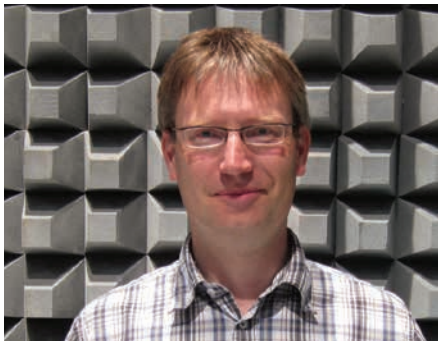
Invited Talk From EurAAP

Wednesday, November 2
8 - 8:30 a.m.
Dr. Christian Bornkessel

"Antenna Measurements and Wave Propagation in the Virtual Road for Future Mobility Applications"

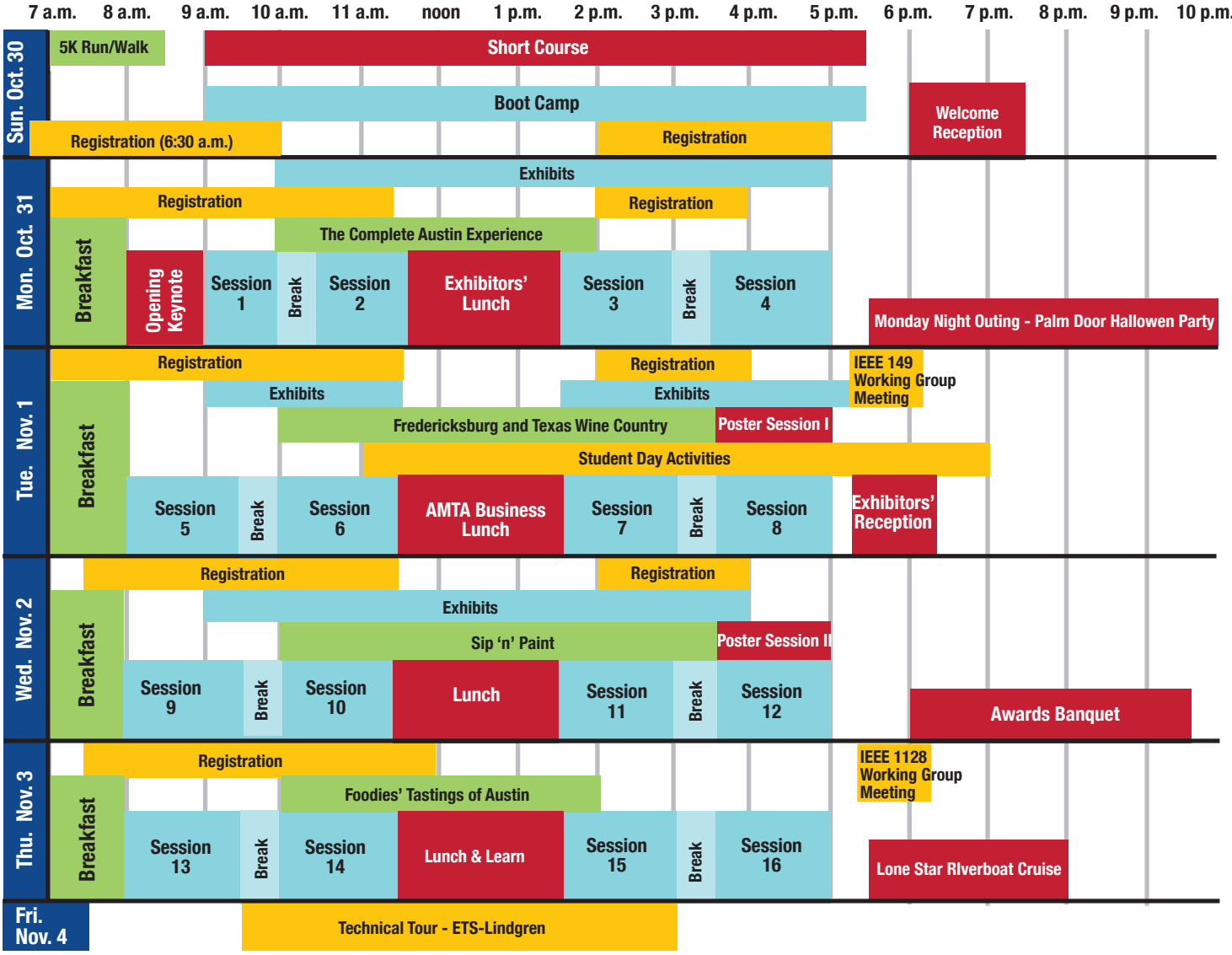


Dr. Christian Bornkessel received his Dipl.-Ing. degree in 1990 from the Technical University of Ilmenau, Germany and his Dr.-Ing. degree in 1993 from the University of Karlsruhe, Germany. From 1991 to 1995, he was a research assistant at the Institute for High Frequency Techniques and Electronics at Karlsruhe University in the field of numerical analysis of Electromagnetic Compatibility (EMC) aspects.

From 1995 to 2014, he was with IMST GmbH, Kamp-Lintfort, Germany, where he was head of the Test Center since 2010. He was responsible for the planning, implementation, accreditation and operation of an accredited EMC test center.

Since 2014, he is with the Technische Universität Ilmenau, RF and Microwave Research Laboratory. He is responsible for a novel nearfield measurement facility called "VISTA" (Virtual Street). His current activities involve radio based car communication (V2X) and EMC aspects with a focus on human exposure to RF and LF electromagnetic fields.

AMTA 2016 Preliminary Schedule at a Glance



Preliminary Technical Program

This program is preliminary and is subject to change. Updated listings can be found at www.amta2016.org.

MONDAY

Meeting Opening/Keynote Address
8 - 9:06 a.m.
Welcome and Introduction of Keynote Speakers
Steve Nichols (AMTA President)

Keynote Address: Protecting the Space Shuttle from Itself
Dr. Brian Kent, Applied Research Associates, Fairborn, Ohio and Dr. Robert Scully, NASA, Houston, Texas

Opening Remarks and Instructions: Dirk Heberling

Session 1: General Antenna Measurement 1
9:06 - 10 a.m.

Chair: Jeffrey Bean (Georgia Tech Research Institute)

"Phase Error Characterization of a Space-Fed Array", Brian Holman, Jacob Houck, Philip Brady (Georgia Tech Research Institute)

"Efficient Diagnosis of Radiotelescopes Misalignments", Amedeo Capozzoli, Claudio Curcio, Angelo Liseno, Salvatore Savarese (Università degli Studi di Napoli Federico II, Dipartimento di Ingegneria Elettrica e Tecnologie dell'Informazione (DIETI))

"Precise Determination of Phase Centers and Its Application to Gain Measurement of Spacecraft-borne Antennas in an Anechoic Chamber", Yuzo Tamaki[1], Takehiko Kobayashi[1], Atsushi Tomiki[2] ([1]Wireless Systems Laboratory, Tokyo Denki University, [2]Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency)

MORNING BREAK 10 - 10:30 a.m.

Session 2: Extreme AMTA: Unique Challenges and Unique Solutions
10:30 - 11:42 a.m.

Chair: Luca Salghetti Drioli (European Space Agency)

""HANDS UP!" - Measurements of Incident Radio Frequency Power levels from the L3-Comm TSA ProVision Body Scanner," Brian Kent (Applied Research Associates)

"An Overview of Atom-Based SI-traceable Electric-Field Metrology", Joshua Gordon, Christopher Holloway, Matthew Simons (National Institute of Standards and Technology (NIST))

"Meteosat Third Generation (MTG) GEOSAR Antenna testing at ESA/ESTEC," Luis Rolo[1], Luca Salghetti Drioli[1], Damiano Trenta[1], Eric van der Houwen[1], Paolo Noschese[2], Enrico D'Agostino[2], Roberto Flamini[2] ([1]ESA-ESTEC, [2]Thales Alenia Space - Italy)

"CROMMA at 118 GHz - Dynamic Robot Correction for Improving Antenna Positioning During Extended Measurements," David Novotny, Joshua Gordon, Alexandra Curtin (National Institute of Standards and Technology (NIST))

11:42 a.m. - 1:30 p.m.
EXHIBITOR'S LUNCH – Exhibit Areas

Session 3: Compact Range Measurement
1:30 - 3 p.m.

Chair: Ed Urbanik (BAE Systems)

"Investigation into Antenna Measurement Quality from a Large Compact Range Operating at Q-Band," James Stewart[1], John Borger[1], George Kakas[1], Josh Beck[2] ([1]Air Force Research Laboratory, [2]Defense Engineering Corporation)

"Transfer Function Characterization for a Dual Reflector, Indoor Compact Range," Thomas Cowles, Lonny Walker (Raytheon Space and Airborne Systems)

"Correcting Polarization Distortion in a Compact Range Feed," Brett Walkenhorst, David Tammen (NSI-MI Technologies)

"Inverse Scattering and Imaging of Compensated Compact Ranges with Arbitrarily Curved Surfaces by Plane Wave Analysis," Engin Gülten[1], Josef Migl[1], Thomas Eibert[2] ([1]Airbus DS GmbH, [2]Technical University of Munich)

"A Novel Very Large Measurement System of Compact Range," Zhiping Li[1], Jian Hua Wu[1], Zhengpeng Wang[1], Haibo Chen[2], Guoyu He[1, 2] ([1]BeiHang University, [2]Guoyu Microwave Technology Co.,Ltd)

AFTERNOON BREAK 3 - 3:30 p.m.

Session 4: RCS Measurement
3:30 - 5 p.m.

Chair: Christer Larsson (Saab Dynamics and Lund University)

"BIANCHA: A Spherical Indoor Facility for Bistatic Electromagnetic Tests", Patricia López-Rodríguez, David Escot-Bocanegra, David Poyatos-Martínez, Olga Hernán-Vega (Spanish National Institute for Aerospace Technology (INTA))

"Efficient Algorithms for Monostatic RCS of Electrically Large Structures," Oscar Borries, Erik Jørgensen, Peter Meincke (TICRA)

"Near to Far Field Transformation of RCS Using a Compressive Sensing Method," Christer Larsson (Lund University and Saab Dynamics)

"The QuadProbe: A Novel Field Probe Concept for Radar Cross Section (RCS) and Antenna Ranges," Peter Collins, James Dossett, Nathan Lett (Air Force Institute of Technology)

"A new Bi-static RCS measurement Technique for Compact Antenna Test Ranges," Rakesh Singh[1], NVSN Sarma[2], DR Jahagirdar[1] ([1]Research Centre Imarat, Defence Research & Development Organisation, Hyderabad, Telangana State, [2] National Institute of Technology, Warangal, Telangana State)

TUESDAY

Session 5: Novel Antenna Design
8 - 9:30 a.m.

Chair: Lars Foged (MVG)

"Comparative Analysis of Dual Band Elevated Antenna on a Silicon Base," Kalyan Sumanam (KL University)

"Improved Design, Fabrication and Focused Beam Measurement of 3D Fragmented Aperture Antennas," James Maloney, John Schultz (Compass Technology Group LLC)

"A Reconfigurable Antenna Construction Toolkit with Modular Slotted Waveguide Elements for Arbitrary Pattern Designs," Robert Geise (University of Braunschweig / Institute for EMC)

"New Light Low-cost Dielectric Ring Structure for Gain Improvement of Horn Antennas," Aidin Mehdipour, Zhong Chen (ETS-Lindgren, Inc.)

"Novel Tunable Biconical Antenna for Vehicle Immunity Test per ISO 11452-2 and CISPR 25 Standards," Aidin Mehdipour, Zhong Chen (ETS-Lindgren, Inc.)

MORNING BREAK **9:30 - 10 a.m.**

Session 6: Range Design and Quiet Zone
10 - 11:30 a.m.

Chair: Chi-Chih Chen (The Ohio State University)

"On the RCS-based technique for measuring the wall reflectivity in an anechoic chamber," Marc Dirix[1], Amin Enayati[2], Joachim van Wesemael[2], Pawel Bajurko[3] ([1]Marc Dirix / RF, [2]Emerson&Cuming Anechoic Chambers, [3]Institute of Radioelectronics and Multimedia Technology, Warsaw University of Technology)

"Limitations of the Free Space VSWR Measurements for Chamber Validations," Zhong Chen[1], Amin Enayati[2], Aidin Mehdipour[1] ([1]ETS-Lindgren, Inc., [2]Emerson&Cuming Anechoic Chambers)

"Enabling Extremely High Dynamic Range Measurements using a Simple Correlator," Brett Walkenhorst (NSI-MI Technologies)

"A Polynomial Approximation for the Prediction of Reflected Energy from Pyramidal RF Absorbers," Vince Rodriguez, Edwin Barry (NSI-MI Technologies)

"Improving Test Efficiency on a Limited Budget – A Measurement Timing Case Study," Steven Nichols, Rick Burge, Steve Stafford (NSI-MI Technologies)

STUDENT DAY **11 a.m. - 7 p.m.**

BUSINESS LUNCH **11:30 a.m. - 1:30 p.m.**

Session 7: Spherical Near-Field Measurement
1:30 - 3 p.m.

Chair: Sergey Pivnenko (ASYSOL)

"Spherical Field Transformation for Hemispherical Antenna Measurements above Perfectly Conducting Ground Planes," Raimund Mauermayer, Thomas Eibert (Technical University of Munich, Chair of High-Frequency Engineering)

"Nonredundant NF-FF Transformation with Spherical Scan Accounting for an Offset Mounting of a Long AUT," Francesco D'Agostino, Flaminio Ferrara, Claudio Gennarelli, Rocco Guerriero, Massimo Migliozzi (D.I.In. - University of Salerno)

"Insights Into Spherical Near Field Probe Correction Gained From Examining the Probe Response Constants," Jason Jerauld (Raytheon Company)

"Echo Reduction with Minimum Sampling in Spherical Near Field Measurements using Translated-SWE Algorithm," Francesco Saccardi[1], Lars Foged[1], Francesca Mioc[1], Per Iversen[2] ([1]Microwave Vision Italy SRL, [2]Orbit/FR Inc.)

"Dual-polarized Probe at 60 GHz for Spherical Near-field Measurements," Paula Irina Popa, Olav Breinbjerg (Technical University of Denmark, Department of Electrical Engineering)

AFTERNOON BREAK **3 - 3:30 p.m.**

Session 8: Poster Session I
3:30 - 5 p.m.

Chair: Brian Fischer, **Co-Chairs:** Teh-Hong Lee, Ivan LaHaie (Integrity Applications Inc., The Ohio State University, Integrity Applications Inc.)

"A Low Cost, Semi-Automated Antenna Range," Lawrence Ragan (Independent Consultant)

"Determination of the Far Field Radiation Pattern of an Antenna from a Set of Sparse Near Field Measurements," Scott Kordella[1], Kenneth Grimm[2] ([1]MITRE, [2]Private)

"Dual Band Dually Polarized Minkowski Fractal Boundary Patch Antenna Based on Epsilon-Negative Transmission Line," Suman Nelaturi, NVSN Sarma (National Institute of Technology, Warangal, India, Department of Electronics and Communications Engineering)

"Far Field Uncertainty due to Noise and Receiver Nonlinearity in Planar-Near Field Measurements," Serge Balma[1, 2], Dominique Picard[1], Pascal Meisse[2] ([1]GeePs | Group of electrical engineering - Paris, UMR CNRS 8507, CentraleSupélec, Univ. Paris-Sud, Université Paris-Saclay, Sorbonne Universités, UPMC Univ Paris 06, [2]Intespace)

"Nonredundant NF-FF Transformation with Bi-Polar Scanning: Experimental Testing," Francesco D'Agostino, Flaminio Ferrara, Claudio Gennarelli, Rocco Guerriero, Massimo Migliozzi (D.I.In. - University of Salerno)

"Characterizing Multiple Coherent Signals Near 60 GHz Using Standard RF Hardware for MIMO and 5G Applications,"

Alexandra Curtin, David Novotny, Joshua Gordon (National Institute of Standards and Technology (NIST))

"6-40 GHz CubeSat Antenna System for Radiometer," Jiu-Kun Che, Chi-Chih Chen (ElectroScience Lab, The Ohio State University)

"A Dual U Slot Conformal Antenna for Wi-Fi Application," Ratikanta Sahoo, D Vakula, N.V.S.N Sarma (National Institute of Technology, Warangal, India)

"Millimeter-wave Antenna Measurements Using a Novel Approach," Tom Newman, Joe Chandler (Millitech, Inc.)

"Spherical Near-Field Alignment Sensitivity for Polar and Equatorial Antenna Measurements," Patrick Pelland, Greg Hindman, Daniël van Rensburg (NSI-MI Technologies)

"Through-Body RF Transmission Measurement Setup Using UHF RFID at 900 MHz," Patrick Carberry[1], Ara Nazarian[2], Edward Burnham[1], Sergey Makarov[1] ([1]Worcester Polytechnic Institute, [2]Center for Advanced Orthopaedic Studies at Beth Israel Deaconess Medical Center)

"Impact of Waveguide-to-Coaxial Adapter Design on Measurement Antenna Polarization Purity," Edwin Barry (NSI-MI Technologies)

"An improved method for active phased-array antennas calibration," Vasyl Markov (R&D Institute "Kvant")

"Heat Removal from RF Absorber Materials in Planar Near Field Antenna Ranges," Hulean Tyler, Carl Mueller, William Dykeman (Raytheon Company)

"Characterization Of Dual-Band Circularly Polarized Active Electronically Scanned Arrays (AESA) Using Electro-Optic Field Probes," Kazem Sabet, Richard Darragh, Ali Sabet, Sean Hatch (EMAG Technologies Inc.)

"Gain Enhancement of Monopole Antenna using Broadband Artificial Material for UWB Application," Rahul Singha, D. Vakula, NVSN Sarma (National Institute of Technology, Warangal, India)

"Practical Considerations for Coordinate System Rotations in Mode-Space," Ryan Cutshall, Jason Jerauld, Justin Dobbins (Raytheon)

"Assessment of Antenna Coupling using Measurements and Numerical Simulations," Lars Jacob Foged, Lucia Scialacqua, Andrea Giacomini, Francesco Saccardi, Francesca Mioc (Microwave Vision Italy)

"Uncertainty Evaluation for Antenna Gain Measurement Using Extrapolation Technique", Zhenfei Song[1], David Gentle[2], Jun Chen[3] ([1]National Institute of Metrology (NIM), China, [2]National Physical Laboratory (NPL), [3]Nanjing University of Information and Science)

"Probe Correction Technique of Arbitrary Order for High Accuracy Spherical Near Field Antenna Measurements," Francesco Saccardi, Andrea Giacomini, Lars Jacob Foged (Microwave Vision Italy SRL)

IEEE 149 WORKING GROUP MEETING 5:15 - 6:15 p.m.

WEDNESDAY

Session 9: Measurements for Automotive Applications
8 - 9:30 a.m.

Chair: Zhong Chen (ETS-Lindgren, Inc.)

Invited Talk from EurAAP: "Antenna Measurements and Wave Propagation in the Virtual Road for Future Mobility Applications," Christian Bornkessel, Technische Universität Ilmenau, Germany

"A Radar Echo Emulator for the Evaluation of Automotive Radar Sensors," Domenic Belgiovane, Chi-Chih Chen (The Ohio State University)

"Automotive Antenna Evaluation," Garth D'Abreu (ETS-Lindgren, Inc.)

"The Measurement of Horizontal Magnetic Dipole Moment at a Conducting Ground Plane Using a Modified Van Veen Loop," James McLean, Robert Sutton (TDK R&D Corp.)

MORNING BREAK 9:30 - 10 a.m.

Session 10: Measurements for Wireless Applications
10 - 11:30 a.m.

Chair: Christian Bornkessel (TU Ilmenau)

"Characterization of a Wideband Electrically Tunable Multiport Antenna," Montaha Bouezzeddine (RheinMain University of Applied Sciences)

"Advances in MIMO Over-the-Air Testing Techniques for Massive MIMO and other 5G Requirements," Michael Foegelle (ETS-Lindgren, Inc.)

"Advances in Over-the-Air Performance Testing Methods for mmWave Devices and 5G Communications", Michael Foegelle (ETS-Lindgren, Inc.)

"Instantaneous TRP Measurements," James Huff (The Howland Company, Inc.)

"Progress on Electrically Small Antenna Gain and Impedance Measurements," Serge Bories, Jean-François Pintos (CEA LETI)

LUNCH 11:30 a.m. - 1:30 p.m.

Session 11: General Antenna Measurement 2
1:30 - 3 p.m.

Chair: Peter Collins (Air Force Institute of Technology)

"A Comparison of Two Methods for Calibrating a Space-Fed Array," Jacob Houck, Brian Holman, Philip Brady (Georgia Tech Research Institute)

"Gain Comparison of 3D Printed Horns and an Electroformed Horn of the Same Size and Shape," Michael Francis, David Novotny, Joshua Gordon, Alexandra Curtin, Ronald Wittmann (National Institute of Standards and Technology (NIST))

"A Rotating Source Polarization Measurement Technique Using Two Circularly Polarized Antennas," Herbert Aumann[1], Kristan Tuttle[2] ([1]Department of Electrical and Computer Engineering, University of Maine, [2]MIT Lincoln Laboratory)

"In-situ Diagnosis of Direction Finding Antenna using Optically-fed Transmitting Miniature Probes," Serge Bories, Lama Ghattas (CEA LETI)

"Measurement Uncertainties in Millimeter Wave "On-Chip" Antenna Tests," Edward Szpindor, Wenji Zhang, Per Iversen (MVG-Orbit/FR)

AFTERNOON BREAK 3 - 3:30 p.m.

Session 12: Poster Session II
3:30 - 5 p.m.

Chair: Justin Dobbins, **Co-Chairs:** Francesco D'Agostino, David A. Tonn, Raimund Mauermayer (Raytheon, University of Salerno, Naval Undersea Warfare Center, TU Munich)

"Multiple Target, Dynamic RF Scene Generator," David Wayne, John McKenna, Scott McBride (NSI-MI Technologies)

"A Systematic Approach to the Integration of a New Antenna Range," Justin Dobbins (Raytheon Company)

"Effective Numerical Methods for Installed Performance of Antenna Arrays on Electrically-Large Platforms," Derek Campbell, C.J. Reddy (Altair Engineering, Inc.)

"Additive Manufactured Monolithic Leaky Wave Antenna System at mm-wave frequencies," Esteban Menargues[1], Maria Garcia-Vigueras[2], Emile de Rijk[3], Juan R. Mosig[1] ([1]LEMA-EPFL, [2]Institut d'Electronique et de Télécommunications de Rennes (IETR), [3]SWISSto12)

"Indoor 3D Spherical Near Field RCS Measurement Facility: 3D RADAR Images From Simulated And Measured Data," Pierre MASSALOUX (CEA/CESTA)

"Quiet-Zone Qualification of a Very Large, Wideband Rolled-Edge Reflector," Anil Tellakula, William Griffin, Scott McBride (NSI-MI Technologies)

"A Novel Customized Spline-Profiled mm-Wave Horn Antenna for Emerging High Performance CubeSats," Vignesh Manohar, Joshua Kovitz, Yahya Rahmat-Samii (University of California, Los Angeles)

"60 GHz Reference Chip Antenna for Gain Verification of Test Chambers," William McKinzie[1], Per Iverson[2], Edward Szpindor[2], Michael Smith[3], Bradley Thrasher[3] ([1]WEMTEC, Inc., [2]Orbit/FR, [3]DuPont Microcircuit Materials)

"Roughness Impact on the RCS of Simple Canonical Objects in the Terahertz Regime," Wei Gao[1], Xiao-Lin Mi[1], Yi Liao[1], Xiao-Bing Wang[2] ([1]Shanghai Key Laboratory of Electromagnetic Environmental Effects for Aerospace Vehicle, [2]Science and Technology on Electromagnetic Scattering Laboratory)

"Changes In The DO-213 Standard For Commercial Nose-Radome Testing," Scott McBride, Steven Nichols, Mike Murphy, Vince Rodriguez, George Cawthon (NSI-MI Technologies)

"Wearable Antenna Measurements in the Vicinity of the Human Body," Albert Sabban (Electrical Engineering Department Ort Braude College)

"A Tetherless, Absolute-Time Channel Sounder and a Channel Processing Methodology," David Novotny, Alexandra Curtin, Kate Remley, Richard Candell (National Institute of Standards and Technology (NIST))

"Extrapolation Range for D-band Standard Gain Horn Antenna Measurement," Jin-Seob Kang, Jeong-Hwan Kim (Korea Research Institute of Standards and Science (KRISS))

"Detailed Uncertainty Analysis of the Electrically Small Antenna Efficiency Measurement," Essia Ben Abdallah, Abdul-sattar Kaddour, Serge Bories (CEA LETI)

"Scattering Effects of Traveling Wave Currents on Linear Features–Part 2," Donald Hilliard[1], Tai Kim[2], Dean Mensa[1], Paul Nelson[3] ([1]Advanced Research and Technology Corporation, [2]Naval Air Warfare Center Weapons Division, Radar Reflectivity Laboratory, [3]Naval Air Warfare Center Weapons Division, Airborne Threat Simulation Organization)

"Implementation of a VHF Spherical Near-Field Measurement Facility at CNES," Gwenn Le Fur[1], Guillaume Robin[1], Daniel Belot[2], Lise Feat[2], Kevin Elis[2], Nicolas Adnet[1], Luc Duchesne[1], Anthony Bellion[2], Romain Contreres[2] ([1]MVG Industries, [2]CNES)

"An Innovative Wide-Band Indoor Far-Field Extrapolation Range," William Dykeman[1], Trae Blain[1], Dale Canterbury[1], Christopher Fisher[1], Christopher Peters[1], David Fooshe[2], Bert Schluper[2], Eddy Park[2] ([1]Raytheon Company, [2]NSI-MI Technologies)

"Radar Echoes from Metal Spheres Large and Small," Pax Wei (The Boeing Company (retired))

"The electromagnetic characteristic of gap in near field," Li Li (Shanghai Radio Equipment Institute)

"Minimum Scattering Probe for High Accuracy Planar NF Measurements," Andrea Giacomini, Lars Foged, Roberto Morbidini, Luca Tancioni, John Estrada, Jim Acree (Microwave Vision Group)

AWARDS BANQUET 6 - 9:30 p.m.

THURSDAY

Session 13: RF Material Measurement
8 - 9:30 a.m.

Chair: Lydell Frasch (The Boeing Company)

"Implementation and Testing of Engineered Anisotropic Dielectric Materials," David Tonn[1], Susan Safford[1], Michael Lanagan[2], Eugene Furman[2], Stephen Perini[2] ([1]Naval Undersea Warfare Center, Division Newport, [2]The Pennsylvania State University Materials Research Institute)

"Correction of Transmission Line Induced Phase and Amplitude Errors in Reflectivity Measurements," John Schultz, James Maloney (Compass Technology Group)

"Uniaxial Anisotropic Material Measurement using a Single Port Waveguide Probe," Alexander Knisely, Milo Hyde, Michael Havrilla, Peter Collins (Air Force Institute of Technology, Department of Electrical and Computer Engineering)

"Analysis of Open Coax Dielectric Measurement method for Material Properties characterization," Anoop Adhyapak, Zhong Chen (ETS-Lindgren, Inc.)

"A Study of the Low-frequency Coaxial Reflectometer Measurement Procedure for Evaluation of RF Absorbers' Reflectivity," Anoop Adhyapak, Zhong Chen (ETS-Lindgren, Inc.)

MORNING BREAK 9:30 - 10 a.m.

Session 14: Innovative Approaches of Antenna Measurement
10 - 11:30 a.m.

Chair: David Novotny (National Institute of Standards and Technology)

"Towards Planar Phaseless Nearfield Measurements of ESA's JUICE Mission 600 GHz SWI Reflector Antenna," Javier Fernández Álvarez, Olav Breinbjerg (Department of Electrical Engineering, Technical University of Denmark, DTU)

"Optimizing a CATR Quiet Zone using an Array Feed," Clive Parini[1], Rostyslav Dubrovka[1], Stuart Gregson[2] ([1]Queen Mary University of London, [2]NSI-MI Technologies)

"The Effect of the Receiving-antenna Pattern on the Results of the Free-space VSWR Technique," Amin Enayati[1], Zhong Chen[2] ([1]Emerson&Cuming Anechoic Chambers, [2]ETS-Lindgren, Inc.)

"Improving the Quiet Zone Cross-Polar Discrimination of Compact Antenna Test Range using the CXR Feed," Andrea Giacomini[1], Lars Foged[1], Antonio Riccardi[1], Dirk Heberling[2], Jörg Pamp[2], Rasmus Cornelius[2] ([1]Microwave Vision Group, [2]RWTH Aachen University, Institute of High Frequency Technology)

"Implementation of a Combination Planar, Cylindrical, Spherical Near-Field Antenna Measurement System using an Industrial 6-Axis Robot," John Hatzis, Greg Hindman, Patrick Pelland (NSI-MI Technologies)

LUNCH & LEARN: "Collaborative Beamforming from Swarming UAS," Gregory H. Huff, Texas A&M University
11:30 a.m. - 1:30 p.m.

Session 15: General Near-Field Measurement
1:30 - 3 p.m.

Chair: Stuart Gregson (NSI-MI Technologies)

"Compact First-Order Probe for Spherical Near-Field Antenna Measurements at P-band," Oleksiy Kim (Technical University of Denmark)

"Phaseless Near-Field Antenna Measurement Techniques – An Overview," Olav Breinbjerg, Javier Fernández Álvarez (Department of Electrical Engineering, Technical University of Denmark, DTU)

"Experimental Validation of Simplified Probe Pattern Correction in Spherical Near-Field Antenna Measurements," Sergiy Pivnenko[1], Enrique Venero[1], Carlo Rizzo[1], Belen Galocha[2] ([1]Antenna Systems Solutions S.L., [2]Universidad Politecnica de Madrid)

"Phase-less Spherical Near-Field Antenna Characterization: A Case Study and Comparison," Hammam Shakhtour, Dirk Heberling (Institute of High Frequency Technology, RWTH Aachen Universtiy)

"Group Delay Measurement For Satellite Payload Testing," Allen Newell, Stuart Gregson, Pat Pelland, Daniël Janse van Rensburg (NSI-MI Technologies)

AFTERNOON BREAK 3 - 3:30 p.m.

Session 16: Numerical Methods and Data Processing
3:30 - 5 p.m.

Chair: C.J. Reddy (Applied EM)

"Time-Efficient and Cost-Effective Antenna Characterization Using Electro-Optical Very-Near-Field Measurements with a New Post-Processing Approach," Jihun Choi, Kamal Sarabandi (University of Michigan)

"Time Gating Based on Sparse Time Domain Signal Reconstruction from Limited Frequency Domain Information," Raimund Mauermayer, Thomas Eibert (Technical University of Munich, Chair of High-Frequency Engineering)

"Study of PO Analytic Methods for Serrated CATR Quiet Zone Simulation," Fernando Rodríguez Varela, José Luis Besada Sanmartín, Belén Galocha Iragüen (Universidad Politécnica de Madrid)

"Source Reconstruction by Far-field Data for Imaging of Defects in Frequency Selective Radomes," Bjorn Widenberg[1], Kristin Persson[2], Mats Gustafsson[2], Gerhard Kristensson[2] ([1]Radomes & Antennas, GKN Aerospace Applied Composites AB, [2]Department of Electrical and Information Technology, Lund University)

"Fast Antenna Array Testing via Regularization Procedures," Laurent Le Coq[1], Benjamin Fuchs[1], Marco Donald Migliore[2] ([1]University of Rennes 1 - IETR, [2]Universita di Cassino e del Lazio Meridionale - DIEI)

IEEE 1128 WORKING GROUP MEETING 5:15 - 6:15 p.m.

Lunch & Learn continued from page 8

of Defense in 2008 for UAS-related research and the NSF CAREER award in that same year for bio-inspired research. Prof. Huff is on the steering committee for the Center for Autonomous Vehicles and Sensor Systems (CANVASS) at Texas A&M University. Prior to his academic activities, Prof. Huff apprenticed professionally and attained the rank of Chef de Cuisine with specializations in French and Mediterranean fare.

AMTA 2016 October 30 - November 4 Austin, TX

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***Required** **Please see us at the onsite Registration Desk if you have any special dietary requests.**

1. REGISTRATION FEES

The deadline for early registration is midnight EDT, September 16. Thereafter, the standard registration price will be in effect.

Full Registration Includes: AMTA membership, admission to technical sessions, AMTA exhibits, proceedings CD, AMTA registration bag, meal tickets for breakfast and lunch Monday through Thursday, tickets to the Sunday Reception and the Awards Banquet on Wednesday night.
One-Day Registration Includes: AMTA membership, admission to technical sessions, AMTA exhibits, proceedings CD, meal tickets to breakfast and lunch for that day.
Exhibitor Convenience Registration Includes: AMTA membership, admission to AMTA exhibits, proceedings CD, meal tickets for breakfast and lunch Monday through Thursday, and ticket to the Sunday Reception. (Does NOT include admission to technical sessions, AMTA Awards Banquet or full registration bag.)

	THROUGH Early	AFTER 9/16/2016 Standard
☐ Full Registration	$800	$1050
☐ Student/Retiree Full	$400	$525
☐ Exhibitor Convenience	$530	$690
☐ One-Day Registration	$400	$525
☐ One-Day Student/Retiree	$200	$260

Check day you will attend:
☐ Mon, Oct 31 ☐ Tues, Nov 1 ☐ Wed, Nov 2 ☐ Thurs, Nov 3

Registration = $_____
☐ Printed Proceedings $ 40 x ____ = $ _____
☐ Extra Proceedings CD $18 x ____ = $ _____

NOTE: Space is limited at ticketed & companion events. To assure your space, please register early. Only paid-in-full registrations are guaranteed. Space at these events cannot be guaranteed for registration received onsite at AMTA 2016.

2. TICKETED EVENTS

Sunday Training Events (Oct 30)
Current AMTA Membership required. Courses run concurrently.
☐ **Short Course**: "New Frontiers in RF Material Measurements"
☐ **Boot Camp:** "Basic Antenna and Related Measurements"
(See www.amta2016.org for course curriculum)

Either course:
Through 9/16/16 $355
After 9/16/16 $385
Short Course/Boot Camp = $ _____

☐ **Sunday 5K Run or Walk** $25 x ____ = $ _____
☐ **Monday Night Halloween Dinner** $85 x ____ = $ _____
☐ **Tuesday Student Day** $0 x ____ = $ _____
☐ **Wednesday Awards Banquet - Extra Tickets** $75 x ____ = $ _____
☐ **Thursday Night Dinner Cruise** $50 x ____ = $ _____
☐ **Friday Technical Tour** $45 x ____ = $ _____

Extra Meals ($45 each, indicate number needed next to each option.)
☐ Mon Breakfast #____ ☐ Wed Lunch #____
☐ Tues Breakfast #____ ☐ Thurs Breakfast #____
☐ Tues Business Lunch #____ ☐ Thurs Lunch #____
☐ Wed Breakfast #____

Extra Meals $45 x ____ = $ _____

3. COMPANION EVENTS

☐ **Complete Austin Experience** $65 x ____ = $ _____
Mon, Oct 31 - includes lunch
☐ **Fredericksburg and Texas Wine** $80 x ____ = $ _____
Tues, Nov 1 – lunch on own
☐ **Sip 'n' Paint – Inner Artist** $70 x ____ = $ _____
Wed, Nov 2 - includes lunch
☐ **Foodies' Tastings of Austin** $70 x ____ = $ _____
Thurs, Nov 3 - includes lunch

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Only written requests for refunds received before Sept 16, 2016 will be accepted. Company or government purchase orders are not accepted. **Refund & Cancellation Policy**: Cancellation fee of 10% of the Total Registration & Events Fee will apply on all charges if cancelled. Substitutions are permitted. All fees in U.S. dollars. Checks must be drawn in U.S. funds.

October 30 - November 4, 2016

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