



Corona



Cedar Rapids Section - Institute of Electrical and Electronic Engineer
Serving Engineering Professionals in Eastern Iowa

AUGUST 2019

IEEE DAY - October 1

Our 75th Anniversary celebration includes a banquet at The History Center with our own Mike Wilson speaking. Our IEEE milestone will be on display. We will have access to other museum exhibits.

CEDAR RAPIDS SECTION EVENTS

- [Fundamentals of mm-Wave and Sub-Terahertz Frequency Generation, Synthesis, and Radiation for Multi-Antenna Array Transceivers - Cedar Rapids/Cen Iowa Jt. Section Chapter, MTT17 on 26-September-2019](#)
- [Shifting Power Generation at Sea over Two Centuries - Cedar Rapids Section Chapter, PE31 on 10-October-2019](#)
- [October Cedar Rapids IEEE Executive Committee Meeting - Cedar Rapids Section on 08-October-2019](#)
- [September Cedar Rapids IEEE Executive Committee Meeting - Cedar Rapids Section on 10-September-2019](#)
- [August Cedar Rapids IEEE Executive Committee Meeting - Cedar Rapids Section on 13-August-2019](#)

CENTRAL IOWA SECTION EVENTS

- [Central Iowa Section - FREE ticket to the Iowa State Fair STEM Day - Central Iowa Section on 18-August-2019](#)
- [Central Iowa Section ExCom meeting - Central Iowa Section on 07-August-2019](#)

AEROSPACE AND ELECTRONIC SYSTEMS SOCIETY MEMBERS

We have enough AESS members in our section to create a chapter. This provides access distinguished lecturers. To form a chapter, we need to sign a petition asking to form the chapter. Once formed, we need to hold two events per year. There are a number of distinguished lecturers who are available.

Let me know if you are interested in forming a chapter. I will gather the paperwork and get the process started.

Bill.Caldwell@ieee.org

FUTURE NEARBY EVENTS

- Machine Learning in Digital Medicine : Madison Section
- Machine Learning in Digital Medicine : Twin Cities Section Jt. Chapter, SP01/COM19
- IEEE Twin Cities I&M Society August Meeting : Twin Cities Section Chapter, IM09
- Maximizing Future PM Machine Efficiency - How to Predict Core Losses with Wide-Bandgap Switches? : Milw/Madison/NE Wisc Jt. Section Chapter, PE31
- Quad Cities River Bandits Baseball Game : Iowa-Illinois Section Affinity Group, YP
- IEEE Women in Engineering AI Leadership Summit : Chicago Section, WIE Affinity Group
- IEEE Twin Cities I&M Society 25th Anniversary Reception : Twin Cities Section Chapter, IM09

CEDAR RAPIDS IEEE SECTION REGION 4 NEWSLETTER REPORT

We have been competing with the many obligations that keep all our section members and especially our volunteers busy. We are building up to IEEE Day to celebrate our 75th Anniversary at the History Center in Cedar Rapids.

Moon Talk celebrating Collins Radio Engineering contribution to the Apollo 8 space program occurred in December 2018. Live from The Moon, Apollo 11 occurred in July since this was the next segment created by the Arthur Collins Legacy on the actual landing on the moon. More details on how the deep space network technology breakthroughs allowed many sensor communications links in the newly created Unified S-Band to bring to Earth all of telemetry data, voice communications including live TV. We will have another IEEE event on this topic this fall. Mike Wilson, interviewed in Live from the Moon, will discuss his IEEE experiences over his career and during the Apollo challenges.

Wireless Energy Efficiency from the MTT Distinguished Lecture series provided innovated ways to use passive sensors in the evolving 5-G communications environment.

Regional Vitality Committee Activities for Region 4 have been involved with reviewing the Region 4 Sections burn down charts and participating in the IEEE RVC meeting led by Hossam Ali. The identified priorities are:

- 1- Training and Leadership Development
- 2- Student engagement/Retention (transition between student and YP)
- 3- Industry Engagement Activities
- 4- Membership Development/Recruitment
- 5- Member engagement

The emphasis has vectored toward membership training in addition to the volunteer training. There seems to be a widening gap between what members utilize in IEEE and what IEEE has to offer.

Our MD chair has been tracking our Cedar Rapids section characteristics statistics. There are an average of 6 technical subscriptions per member. This indicates how diverse the interests are within IEEE technical societies and groups. The paradox and opportunity are how to vector events and activities that are in the hot zones of these interests.

ProCon - Meredith Godar

The 22nd Annual Professional Development Conference, ProCon, was held this year on Tuesday, May 14th at the Cedar Rapids Marriott Hotel. This year we had two tracks and three great speakers!

Track one was focused on cybersecurity. In the morning, we had Dr. Doug Jacobson, a Professor in the Department of Electrical and Computer Engineering at Iowa State University. He discussed cybersecurity for home and business. In the afternoon, Andy Neller, the CyberSecurity Operations Manager and HIPAA Security Official for Wellmark Blue Cross Blue Shield Inc, discussed both cyber security and cloud security.

Track two was focused on emotional intelligence. Patti Seda, from Seda Consulting, lead participants through a personality assessment and exercises to increase our EQ both at work and at home.

Planning for next year's ProCon is already in the works for April 21, 2019 at Marriott. Be on the lookout for more information towards the end of the year.

IEEE and Amateur Radio

The Cedar Rapids Section had a booth at the CVARC Ham radio convention and presented at at the Forum. The STEAM ON group was next to the IEEE booth and their presentation was an excellent example on where the youth 4-12 are growing their scientific methods.

<https://www.facebook.com/STEAMOnIowa/>
<https://steamon.org/>



IEEE

Cedar Rapids Section

Institute of Electrical and Electronics Engineers

IEEE Microwave Theory and Techniques Chapter Presents

“Fundamentals of mm-Wave and Sub-Terahertz Frequency Generation, Synthesis, and Radiation for Multi-Antenna Array Transceivers”

Thursday, September 26, 2019, 5:30 PM - 7:00 PM

Speaker: Professor Payam Heydari, University of California, Irvine, CA, USA

Abstract: Operation in the mm-wave and terahertz (THz) bands has gained great interest due to abundance of unutilized spectrum and resurgence of new applications in wireless/cellular communications, most notably 5G. If combined with spectrally efficient (de-)modulation techniques, mm-wave/THz wireless communication has the potential to achieve multi-gigabit-per-second wireless data-rate. In addition, the operation at higher frequency gives rise to smaller size passive components (most notably antennae), making it possible to design and implement massive phase-array or MIMO systems on a single die or single wafer. As the communication schemes including spectrally-efficient (de-)modulation and carrier aggregation techniques are making progress at RF frequencies, far more challenging requirements will be imposed on the oscillator and frequency synthesis design. Increasing the carrier frequency towards the mm-wave/terahertz regime only makes these requirements more stringent.

This lecture will cover two generic inter-related themes: (1) a comprehensive overview of mm-wave multi-antenna transceiver architectures which includes phased-array, MIMO, and beam-forming MIMO architectures; (2) overview of

frequency generation, synthesis, and high-efficiency radiation at mm-wave and sub-terahertz frequencies.



Speaker Biography:

Payam Heydari received his B.S. and M.S. degrees (Honors) in Electrical Engineering from Sharif University of Technology in 1992 and 1995, respectively. He received his Ph.D. degree from the University of Southern California in 2001. He is currently a Full Professor of Electrical Engineering at the University of California, Irvine. His research covers the design of terahertz/millimeter-wave/RF and analog integrated circuits. He is the (co)-author of two books, one book chapter, and more than 140 journal and conference papers. Professor Heydari, an IEEE Fellow, has served as Distinguished Lecturer of both the IEEE Solid-State Circuits Society (SSCS) (2014-2016) and the IEEE Microwave Theory and Techniques Society (MTT-S) (2019-2022).

Where: Whipple Auditorium, Cedar Rapids Public Library 450 5th Ave. SE, Cedar Rapids, IA (Free Parking after 6PM)

Reservations: <http://www.ieee-cr-section.org/> Click on meeting link in upper right corner of page.