



## IEEE NEWS FOR MARCH 2015

Jacob Z. Schanker, P.E., Newsletter Chair  
The Rochester section web site is at: <http://rochester.ieee.org/>

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### **Rochester Section Meeting – Tuesday, March 3, at Noon**

The next monthly Rochester Section business meeting is on Tuesday, March 3, at 12:00 PM, at the **Hibachi Sushi Buffet Restaurant** in South Town Plaza on Jefferson Road (Route 252) just west of West Henrietta Rd. (Route 15). Any IEEE member is invited to attend. Lunch is only \$3 for IEEE members. No reservation or RSVP is needed, just show up.

### **2015 Joint Chapters Meeting**

The IEEE Joint Chapters Meeting will be held on Tuesday, March 31, 2015, at the RIT Inn and Conference Center, 5257 West Henrietta Road. This is the premier multi-society technical meeting of the year.

See the full-page announcement in this issue for all the details on this great event.

Updated information on this and other meetings can always be found at:  
<http://rochester.ieee.org/calendar/>.

While advance registration for any of the individual talks at the Joint Chapters Meeting is not necessary, it is a great courtesy to meeting organizers to register in advance. This allows them to plan the arrangements to accommodate the anticipated attendance.

With the online **IEEE vtools** system, registration is fast and painless. Here are some direct links for registration.

For the Joint Chapters Meeting including the dinner and keynote address, use this link:

<https://meetings.vtools.ieee.org/m/31549>

For the Silicon Photonics - Rochester Photonics Chapter Meeting at 2015 Section JCM:

<https://meetings.vtools.ieee.org/m/32103>

For the Venture Capital Panel Discussion - 2015 Rochester TEMS Chapter Meeting at Section JCM: <https://meetings.vtools.ieee.org/m/32407>

As an added note, The Technology and Engineering Management Society will have Scott Catlin, Director of UR Ventures, to present and discuss technology licensing and commercialization from the University of Rochester's many-faceted research and engineering programs during the technical sessions of the Joint Chapters Meeting.

## **Play Ball!!! With IEEE and the Red Wings**

Hold this date: Friday evening May 1, 2015, for an IEEE Rochester Section social gathering including Triple AAA Rochester Red Wings vs. Norfolk Tides in Frontier Field. Enjoy the great American pastime with colleagues and friends. The first pitch is at 7:05pm, but come when gates open at 6pm.

We will be having picnic grille food at The 10<sup>th</sup> Inning Bar, right there at Frontier Field.

Cost is \$8 per person for IEEE members (only \$5 for IEEE student members). Contact [thomas.pian@outlook.com](mailto:thomas.pian@outlook.com) for further information.



## IEEE Communications Society Talk – March 18

**Date:** 18th March 2015

**Time:** 6.30 PM Pizza and Social, 7PM to 8 PM talk

**Location:** Rochester Institute of Technology, Golisano Hall Building 70, Room 2400

**Title:** Towards 5G: Carrier-Grade Programmable Virtual Mobile Networks

**Abstract:** The telecom industry keeps reinventing itself. Soon, the world will be experiencing the 5<sup>th</sup> generation mobile networks (5G), also referred to as beyond 2020 mobile communication systems. In addition to increased peak bit rates, higher spectrum spectral efficiency, and better coverage, 5G systems are required to be scalable, supporting potential numbers of diverse connectable devices, including Machine Type Communications (MTC) devices, and handling mobile traffic 1000 times larger than the current one. The need to cope with such an ever-increasing mobile traffic, most importantly in a cost-efficient way, has become critical for the sustainability of mobile operators worldwide, mainly in light of the stagnant (rather falling) Average Revenue per User (ARPU).

Major obstacles to overcome are principally the highly centralized architecture of mobile networks along with the static provisioning and configuration of network nodes built on dedicated hardware components. This has resulted in lack of elasticity and flexibility in deployment of mobile networks; rendering their run-time management costly, cumbersome and time-consuming.

Software Defined Networking, Network Function Virtualization, and Cloud Computing, along with the principles of the latter in terms of service elasticity, on-demand features, and pay-per-use, could be important enablers for various mobile network enhancements, to specifically virtualize and decentralize mobile networks using general-purpose COTS hardware. For this purpose, different requirements have to be met and numerous associated challenges have to be subsequently tackled.

This talk will touch upon the recent trends the mobile telecommunications market is experiencing and discuss the challenges these trends are representing to mobile network operators. To cope with these trends, the talk will then showcase the feasibility of on-demand creation of cloud-based elastic mobile networks, along with their lifecycle management. The talk will introduce a set of technologies and key architectural elements to realize such vision, turning end-to-end mobile networking into software engineering. The talk will also touch upon the current congestion management approaches and their limitation to cope with the required scalability of 5G systems. In this vein, this talk will be highlighting the challenges current and future mobile systems are/will be facing and will be then showcasing how programmable virtual mobile networks can be used as an efficient solution to revolutionize the congestion management concept and to deal with the ever-growing mobile traffic.

**About the Speaker:** Dr. Tarik Taleb is an IEEE Communications Society (ComSoc) Distinguished Lecturer and a senior member of IEEE. He is currently a Professor at the School of Engineering, Aalto University, Finland. He has been working as Senior Researcher and 3GPP Standards Expert at NEC Europe Ltd, Heidelberg, Germany. He was then leading the NEC Europe Labs Team working on R&D projects on carrier cloud platforms. He was also serving as technical leader of the main work package, Mobile Core Network Cloud, in EU FP7 Mobile Cloud Networking project, coordinating among 9 partners including NEC, France Telecom, British Telecom, Telecom Italia, Portugal Telecom Innovation, SAP, & Intel. Prior to his work at NEC and till Mar. 2009, he worked as assistant professor at the Graduate School of Information Sciences, Tohoku University, Japan, in a lab fully funded by KDDI, the second largest network operator in Japan. From Oct. 2005 till Mar. 2006, he was working as research fellow with the Intelligent Cosmos Research Institute, Sendai, Japan. He received his B. E degree in Information Engineering with distinction, M.Sc. and Ph.D. degrees in Information Sciences from GSIS, Tohoku Univ., in 2001, 2003, and 2005, respectively.

Dr. Taleb's research interests lie in the field of architectural enhancements to mobile core networks (particularly 3GPP's), mobile cloud networking, mobile multimedia streaming, congestion control protocols, handoff and mobility management, inter-vehicular communications, and social media networking. Dr. Taleb has been also directly engaged in the development and standardization of the Evolved Packet System as a member of 3GPP's System Architecture working group. Dr. Taleb is a board member of the IEEE Communications Society Standardization Program Development Board. As an attempt to bridge the gap between academia and industry, Dr. Taleb has founded and has been the general chair of the "IEEE Workshop on Telecommunications Standards: from Research to Standards", a successful event that got awarded "best workshop award" by IEEE Communication Society (ComSoC). Based on the success of this workshop, Dr. Taleb has also founded and has been the steering committee chair of the IEEE Conference on Standards for Communications and Networking (IEEE CSCN).

Dr. Taleb is/was on the editorial board of the IEEE Transactions on Wireless Communications, IEEE Wireless Communications Magazine, IEEE Transactions on Vehicular Technology, IEEE Communications Surveys & Tutorials, and a number of Wiley journals. He is serving as chair of the Wireless Communications Technical Committee, the largest in IEEE ComSoC. He also served as Secretary and then as Vice Chair of the Satellite and Space Communications Technical Committee of IEEE ComSoc (2006 - 2010). He has been on the technical program committee of different IEEE conferences, including Globecom, ICC, and WCNC, and chaired some of their symposia. Dr. Taleb is the recipient of the 2009 IEEE ComSoc Asia-Pacific Best Young Researcher award (Jun. 2009), the 2008 TELECOM System Technology Award from the Telecommunications Advancement Foundation (Mar. 2008), the 2007 Funai Foundation Science Promotion Award (Apr. 2007), the 2006 IEEE Computer Society Japan Chapter Young Author Award (Dec. 2006), the Niwa Yasujirou Memorial Award (Feb. 2005), and the Young Researcher's Encouragement Award from the Japan chapter of the IEEE Vehicular Technology Society (VTS) (Oct. 2003). Some of Dr. Taleb's research work has been also awarded best paper awards at prestigious conferences.



# 2015 Rochester Section Joint Chapters Meeting

March 31, 2015

RIT Inn & Conference Center, 5257 W. Henrietta Road

Registration:	4:00 – 4:30 PM
Chapter Technical Presentations:	4:30 – 5:30 PM and 5:30 – 6:30 PM (see below)
Social and Refreshments (Cash Bar)	6:30 – 7:00 PM
Dinner & Keynote Presentation:	7:00 – 9.30 PM



## Keynote Speaker: Dr. Stefan Wurm

SEMATECH Director of Strategic Alliances

### *Collaborative Research and Development in a Dynamically Evolving High Technology Landscape*

The semiconductor industry landscape today looks very different than it did when SEMATECH was founded in the late 1980's to help drive and coordinate collaborative research in a highly competitive industry with more than 20 leading-edge chip companies. Today semiconductor manufacturing is i) a highly consolidated industry with only a few players that can afford to invest in leading edge development and manufacturing; ii) supplying a much more differentiated end market served by a new set of players, many of whom did not exist 25 years ago; and iii) supported by a supply chain where even the largest players struggle to fund research and development needs. While this provides opportunities for new models of successful collaborative research within the value chain of the semiconductor industry, it also points to a need for collaboration between industries that that have not traditionally cooperated. Examples include healthcare and scientific applications that increasingly rely on highly integrated silicon solutions. In this presentation we share our perspective on these industry changes and their implications for successful research and development collaboration.

### Presentations

<i>Electron Devices</i>	Dr. Min-Hwa Chi	Globalfoundries	FinFET technology: Overview and status at 14nm node and beyond
<i>Photonics</i>	Dr. Stefan Preble	Rochester Institute of Technology	Silicon Photonics – Light on a Chip for High Performance Computing
<i>Signal Processing</i>	Dr. Raja Bala	Xerox	Video Analytics in Transactional Services
<i>Engineering in Medicine and Biology</i>	Dr. Cristian Linte	Rochester Institute of Technology	On Augmented and Virtual Visualization Environments for Computer-Aided Diagnosis and Image-guided Interventions
<i>Geospatial and Remote Sensing</i>	Dr. Matthew J. Hoffman	Rochester Institute of Technology	Ground Target Tracking Utilizing DDDAS Based Control of an Adaptive Optical Sensor
<i>Microwave Theory &amp; Techniques</i>	Dr. Frank Scharf	CST of America	Modeling and Simulation of Plasma Based Applications in the Microwave and RF Frequency Range
<i>Communications</i>	Dr. Giridhar Mandyam	Qualcomm	User Authentication and the Mobile Web
<i>Technology Management Council</i>	Special Session with VC Panel		Panel discussion

### Dinner Selections

*New York Strip Steak*

Ten Ounces with Caramelized Onions & Cabernet Butter

Or *Seared Salmon*

Prosecco Cream Sauce

Or

*Spicy Orecchiette*

Pasta with Mixed Vegetables in Arrabbiata Sauce

**Dinner Reservations Required (No charge for attending technical presentations):**

**Register on-line at <https://meetings.vtools.ieee.org/m/32103> (pay-pal accepted)**

**Dinner:** \$30.00 (IEEE member), \$40.00 (Non-member).