IEEE Southern Alberta Section

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COMMTTAP Membership survey

The COMMTTAP chapter (Communications and Microwave Theory and Techniques, Antennas and Propagation) is currently conducting a survey of our members, as we would like feedback from our membership to help us improve our chapter activities. Typically, the COMMTTAP executive organizes 6 technical talks per year. We would like to make sure that we are targeting the interests of our members and organizing events at convenient times and locations.   We would greatly appreciate members filling out a short, three-minute, anonymous online survey. The survey can be found here:

http://www.surveymonkey.com/s/JQP3P7P

Please complete the survey by March 15, 2011. Thank you for your support!

Contact Mahmoud (Maz) Mazadi (mmazadi@ucalgary.ca) for feedback and submissions for future newsletters.

Wideband Operational Transconductance Amplifiers for Gigahertz Applications

Carlos E. Saavedra

Associate Professor
Department of Electrical and Computer Engineering, Queen's University
Kingston, Ontario, Canada

Abstract - The versatility and usefulness of operational transconductance amplifiers (OTA's) largely stems from the fact that they can be used as building blocks to make circuits with more advanced capabilities.   While analog designers have been using OTA's for a considerable period of time, only recently has the RF community started to make more use of this class of circuits. In this talk, a fully differential CMOS OTA that uses a feedforward-regulated cascade topology will be presented first. The feedforward configuration provides the OTA with a wideband frequency response of 10 GHz and it also allows the OTA to handle large RF signals.   The second part of the talk will be devoted to novel microwave circuits that we have designed and fabricated in our group using the above OTA. One such circuit is a 360° vector sum phase shifter operating in the 2–3 GHz band that uses an OTA to generate the quadrature basis vectors. The phase shifter has an RMS phase error below 5° and its gain error is below 1.2 dB over the measured frequency band. Another circuit is a 5.4 GHz reconfigurable modulator that can generate a multiplicity of QAM modulation formats. Measured results will be presented when the circuit is operating in 4-QAM and 16-QAM modes. The last circuit to be discussed is an active quasi-circulator using two OTA's that has less than 3 dB of loss and a measured isolation of over 26 dB between the isolated ports.

Speaker Biography - Carlos Saavedra is an Associate Professor in the Department of Electrical and Computer Engineering at Queen's University and he served as Graduate Chair of his department from 2007 to 2010. He is a member of the Steering Committee of the 2012 IEEE International Microwave Symposium and is a member of the Technical Program Committee of the IEEE RFIC Symposium.

Location: University of Calgary, ICT Building, Room 518

Time: Friday April 1, 2011 at 2:00-3:00 pm

Higher Order Modeling for

Computational Electromagnetic

Prof. Roberto D. Graglia

Distinguish Lecturer of the IEEE-AP society

Dipartimento di Elettronica, Politecnico di Torino

Torino, ITALY

The progress in the area of Computational Electromagnetics, together with the cost reduction and continuous increase of the computational speed and power of modern computers, have contributed to the development and broad diffusion of numerical software for the analysis and design of complex electromagnetic structures and systems. The geometry and the materials of these structures can nowadays be modeled by powerful pre-processor codes able to provide high order description of the problem to the electromagnetic "solver-software". To take advantage of the high quality models available by using the modern pre-processors, several researchers have also developed in the last decade high order basis functions for finite electromagnetic solver codes. This presentation is intended to provide an overview of the most recent developments obtained in this special area. After a brief overview of the fundamentals of finite methods, an in-depth coverage of higher order models for Moment Method and Finite Element Method applications is provided, thereby considering interpolatory and hierarchical higher order vector bases with a detailed discussion of the implementation problems and of the advantages provided by the use of higher-order models.

Time: Monday, March 21 at 14h00

Location: University of Calgary , ICT Building, Room 516

Roberto D. Graglia received the Laurea degree (*summa cum laude*) in electronic engineering from the Polytechnic of Turin in 1979, and the Ph.D. degree in electrical engineering and computer science from the University of Illinois at Chicago in 1983. In 1992, he joined the Department of Electronics, Polytechnic of Turin, as an Associate Professor. He has been a Professor of Electrical Engineering at that Department since 1999. He has authored over 150 publications in international scientific journals and symposia proceedings. His areas of interest comprise numerical methods for high- and low-frequency electromagnetics, theoretical and computational aspects of scattering and interactions with complex media, waveguides, antennas, electromagnetic compatibility, and low-frequency phenomena. He was elected Fellow of the IEEE in 1998 *for* his *contributions in the application of numerical techniques in the studies of electromagnetic structures*.

The **Power/ Industry Applications** Joint Chapter is pleased to host a series of technical seminars over the 2011's calendar year. Next seminar particulars are as follows:

Title: System grounding: Impact on safety and reliability of personnel and electrical systems

Presenter: Daleep Mohla, F.IEEE, Sergio Panetta, S.IEEE

Date and Time: March 14, 2011, 7:00 PM to 9:00 PM MST

Abstract: This presentation will cover various options for electrical systems grounding and how safety and reliability is significantly enhanced by using high resistance grounding. It will also cover evolution of available technologies for fault detection and isolation of ground faults for optimum benefits.

Location: Nexen's theatre, Nexen's Tower Annex. 801-7th Avenue SW (right off of the c-train tracks)

Event Coordinator: Mr. Tim Driscoll, OBIEC Consulting Ltd.

Event Fees: Advance Registration is until March 7th mail stamped.

Only cheques or money orders accepted, cash is not accepted anywhere including "At the Door" registration.

The cheque is made out to "IEEE Southern Alberta Section".

	IEEE Members	Non-members
Advance Registration	$15	$20
At the Door	$25	$35
Student	$5	$7.50

Please book your spot by requesting a registration form (or simply send your full name, affiliation, phone number and e-mail) and by sending with a cheque with the applicable amount of the above schedule fee to the event coordinator with the appropriate registration fees. Please mail to:

 Tim Driscoll, F.IEEE

OBIEC Consulting Ltd.

604 Bearspaw Village Rd.

Calgary, Alberta

T3L 2P1

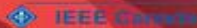**Top Interview Secret:**

Know the Right Questions To *Ask*

Most interview preparation books are filled with sample questions that you'll have to answer during an interview. While it's certainly important to know how to answer tough interview questions, it's equally important to know how to ASK questions in an interview. There are three good reasons to be prepared to ask great questions during interviews.

- To uncover the interviewer's hiring motives.
- To demonstrate your interest and intelligence.
- To uncover any unspoken concerns or "red flags."

Let's look at each of these points:

1. To uncover the interviewer's hiring motives.

A big mistake candidates make going into a job interview is to assume that they know the hiring motives of the interviewer based solely on the job description. But the reality is that each person within an organization will have a slightly different idea of the perfect person for the job.

It's up to you to find out the hiring motives of each person you interview within any one organization. Ask a simple question and you'll know what your interviewer is looking for. Such as:

- What do you see as the most significant challenges for this position?
- What qualities do you look for to fill this position?

Then just listen closely. He/She will tell you just what you need to know in order to tailor your answers to his/her desires.

2. To demonstrate your interest and intelligence.

Nothing works better than a well thought out question to convince your interviewer of the sincerity and interest. Additionally, a good question is the simplest, yet most effective way of impressing them with your intelligence.

The main thing is that you want your question(s) to be specific to the organization you are interviewing with. Avoid generic questions such as "Where do you see your company going in five years?" The interviewer is going to realize you just asked the last five companies that same question. A more targeted and specific question will win you points in the interview, and may tip the scale in your favor when they're discussing which candidate to hire.

3. To uncover any unspoken concerns or "red flags."

Before you walk out of your interview, find out any concerns that may eliminate you as a candidate. This is your best chance to defend your candidacy. This is also your second chance to undo an interview error, or provide vital information. Ask a question something like:

"What concerns do you have that would prevent you from calling me back for the next interview?"

Spoken concerns can be answered with new information on how you've overcome challenges, learned new skills, or adjusted to new industries quickly. Remember, if you don't ask, they will not tell you, and you'll always wonder why they didn't call you back. When it comes to interviews, there is no such thing as over preparation. A resume will get your foot in the door, but the interview will seal the deal. Make sure you're ready to win the job by *asking* the right interview questions.

By: Deborah Walker, Career Coach Deb@AlphaAdvantage.com , www.AlphaAdvantage.com

IEEE - Southern Alberta Section (SAS) introduces a group for

Women in Engineering

The Mission of IEEE Women in Engineering is to inspire, engage, encourage and empower IEEE women worldwide.

IEEE Women in Engineering (WIE) provides members with the opportunity to network at a local level through organizing and hosting diverse activities including guest speakers, workshops, and/or seminars.

IEEE WIE member benefits include access to the IEEE WIE electronic membership directory, a monthly electronic newsletter, and the award-winning Women in Engineering Magazine.

An IEEE membership is required to join the SAS WIE.

If you are interested in joining the SAS IEEE Women in Engineering (WIE), or have further inquiry

Please contact:

Ereena Baig

Chair of IEEE Women in Engineering,

Southern Alberta Section

Ereenabaig@ieee.org"

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