



IEEE

VIRGINIA MOUNTAIN SECTION NEWSLETTER

IEEE Region 3, Council 09, Section 65

March 2002

March 21

Spouses' Night - 2002

Technology Research in U.S. Academic Institutions and Emerging Trends

R.J. Trew

ECE Department, Virginia Polytechnic and State University

Abstract

The U.S. government provides support funds for academic research in engineering through a variety of agencies. The majority of the funds for academic research are provided through the U.S. Department of Defense and the National Science Foundation. Together these two U.S. government agencies provide almost \$4B in total research funding annually to U.S. universities. Support funds for academic microwave oriented research provided by these two agencies have proved instrumental in development of a strong academic base that has provided the intellectual energy resulting in the development of the U.S. communications, radar, remote sensing, and wireless industries. The history of U.S. government support for basic research is discussed, along with the organization of the DoD and NSF funding offices. Research funding distributions and trends are discussed. The genesis and organization of new initiatives, such as the National Nanotechnology Initiative will be discussed.

About the Speaker

Robert J. Trew received the Ph.D. degree from the University of Michigan in 1975. He is currently the Willis G. Worcester Professor of Engineering and Head of the Electrical and Computer Engineering Department of Virginia Polytechnic

**Needed
VMS Newsletter
Editor/Webmaster
See Page 2**

Institute and State University. From 1997-2001 he was Director of Research for the U.S. Department of Defense. Dr. Trew's academic career includes 17 years with North Carolina State University, and 4 years as George S. Dively Distinguished Professor of Engineering and Chair of the Electrical Engineering and Applied Physics Department of Case Western Reserve

University. Dr. Trew is a Fellow of the IEEE, and serves on the IEEE Microwave Theory and Techniques Society Administration Committee (ADCOM). Dr. Trew is a member of IEEE, the Materials Research Society, the Electromagnetics Academy, AAAS, ASEE, Sigma Xi, Eta Kappa Nu, and Tau Beta Pi. He has over 140 publications, 14 book chapters, and has given over 290 technical and programmatic presentations. Dr. Trew has four patents.

Reservations

Date: Thursday March 21, 2001
Social: 6:30 PM
Dinner: 7:00 PM
Talk: 8:00 PM

Cost: Member or Guest \$15.00
Student \$ 8.00

Clarion Hotel Roanoke Airport

2727 Ferndale Drive NW
1581 Exit 3 Hershberger Rd West
1st Rt. onto Ordway Drive,
¼ mile, Rt. Into Parking Lot.

Reserve by 5 PM **Monday** March 18
Mark Shepard (540) 387-8710

mshepard@ieee.org

Please specify number of attendees.

INSIDE

Jan. Meeting Report	2
Chairman's Chat Room	2
Editor Needed	2
Update Your IEEE Record	2
IEEE-USA News	3
Executive Fellowships	3
Call For Speakers	3
Position Statements	3
First Gordon Prize	3
Without Engineers	3
Shaping Public Policy	3
VMS Web Site	3
2001-2002 VMS Schedule	4
The Section	4

Meeting Report

New Technology Innovations for Space Applications

On February 21, 2002, the Virginia Mountain Section of IEEE was treated to a very enthusiastic and informative discussion by Dr. Kumar Krishen, regarding the many technological advancements continually being made at NASA. From the Big Bang to the existence of quarks, Dr. Krishen captivated the audience with his 'universal' knowledge of cutting-edge technology, including discussions of the novel applications of high temperature superconductors, nanotubes, artificial muscles, wavelets, and more.

... *Shawn Addington*

Chairman's Chat Room

Our thanks to Dr. Kumar Krishan for his inspirational presentation on the technology challenges of space exploration at our February 21st meeting. His presentation treated the attendees to a combination of science and philosophy which provided an exciting insight into the mysteries of the solar system.

The Executive Committee meeting also held on February 21st identified two critical staffing needs within your Virginia Mountain Section organization. Candidates are desired for the position of Newsletter Editor and PACE Chair. Interested candidates may volunteer by contacting any officer or member of the Executive Committee as listed on the last page of the Newsletter. The Newsletter Editor role involves the preparation and dissemination of communications and information to the Section membership through the printed word (i.e. Newsletter) and electronically (i.e. web page). The Chair of the Professional Activities Committee for Engineers (PACE) is the main contact between the Section and activities of IEEE-USA. Both roles are explained in more detail elsewhere in this Newsletter. Please seriously consider becoming involved.

SoutheastCon 2002 is rapidly approaching. The conference will be held on April 5-7 in Columbia, South Carolina and is hosted by the Columbia IEEE Section. It will be of interest to students and those involved with

industry and academics as well as retirees and section volunteers. It is time to make your travel plans!

Our March meeting will feature Dr. Robert Trew discussing government funding activities and emerging trends for support of engineering and technology research. Dr. Trew is the Virginia Tech Head of the Electrical and Computer Engineering Department and has unique experience with government, military agencies, and universities. We expect this topic to be of great interest to you and look forward to a most rewarding meeting. Plan on being there!

...*Howard Moses*

EDITOR NEEDED

VMS Members

I will be relocating in the near future.

The Section is in need of someone to take over as Editor of the Newsletter and/or the job of Webmaster. I suggest the task be split into those two, or least shared by two (or more) people.

Both jobs, being volunteer positions, take as much time as you care to devote to them.

The editor job for me, consumes a total of about two full days per month. Composing the Newsletter can take from 4 to 7 hours, it is then e-mailed to the printer in Christiansburg and picked up in one to three days. Envelopes are printed and labeled in the interim. Typically there are about 440 printed copies to fold and stuff, then deliver to the Blacksburg PO Bulk Mail facility (the PO can be changed). Ira Jacobs has been hand delivering about 50 to 60 copies to Tech to save postage.

The Webmastering involves posting a pdf version of the Newsletter, sending a text version to the e-mail subscribers, updating the main and chapter pages as required. There are four e-mailing lists on the IEEE server that must be kept updated, much of this is automated. Generally the tasks take little more than a few hours per month, but every now and then, general maintenance and restructuring can eat up quite a bit of time.

If you are not personally interested, please talk to your colleagues. It would be nice to have a smooth transition and I do not know how long I will here to assist in that.

please call: (540) 552-0052
or <mailto:j.fennick@ieee.org>

It has been my pleasure to serve as your editor for a time. The job does have its occasional rewards and I thank all who have passed comments this way over the years.

John Fennick
...*editor*

Update your IEEE Record

The IEEE will accept updates from volunteers (Officers, editors) and we occasionally note discrepancies, in e-mail addresses for example, and send corrections to headquarters. However, this is a slip-shod method at best and IEEE's general policy is that the member is responsible for his or her own information.

Each month when creating address labels and updating local records with new data from Headquarters, we notice numerous obvious errors in the data base e.g., area code 703.

When did you last update your records at IEEE? Have you moved, changed phone number, or e-mail address (most common)? Please take a moment to reflect and then act if need be.

There are several different ways to correct member information:

There is a web based interactive "change of address" form at:
<http://services1.ieee.org/membersvc/coa/intro.htm>

You can send an e-mail message to:
addresschanges@ieee.org.

Call IEEE Member Services at

1-800-678-IEEE
(1-800-678-4333)

Mail changes to:

IEEE 445 Hoes
Lane PO Box 1331 Piscataway,
NJ 08855-1331 USA

Fax your changes to: 1-732-981-9667

In all cases you will need to include your member number for verification purposes.

IEEE-USA News

IEEE-USA SEEKS APPLICANTS FOR EXECUTIVE FELLOWSHIP WITH U.S. STATE DEPARTMENT

IEEE-USA is seeking applications from U.S. IEEE members interested in spending a year as an Executive Fellow in the U.S. State Department (<http://www.state.gov>), starting in September 2002 or January 2003. The fellowship provides an opportunity for an engineer to provide technical expertise to the State Department, and help raise awareness of the value of engineering input, while learning about and contributing to the foreign policy process. Applications must be received by 3 June 2002. For more details, and to download an application kit, visit <http://www.ieeeusa.org/forum/govfel/state.html> or write to: IEEE-USA, Attn: State Dept. Fellowship, 1828 L Street, NW, Suite 1202, Washington, D.C., 20036-5104.

IEEE-USA S-PAC COMMITTEE ISSUES CALL FOR SPEAKERS

The IEEE-USA Student Professional Awareness Committee is seeking volunteer speakers. The committee assists IEEE Student Branches in implementing Student Professional Awareness Conferences (S-PACs) at their colleges and universities. Planned, organized and conducted by the Student Branches, S-PACs typically feature two or three speakers at half-day sessions designed to help engineering students develop non-technical skills in one of six focus areas: Career Growth; Working; Professional Ethics and Social Responsibility; Self-Management; Engineers and Public Policy; and the Role of the Professional Society. For more information, and to apply, visit:

http://www.ieeeusa.org/committees/SPAC/speaker_topic.html

IEEE-USA APPROVES THREE NEW POSITION STATEMENTS

At its February meeting in Tempe, Ariz., the IEEE-USA Board of Directors approved three new IEEE-USA policy position statements:

- Department of Energy University Nuclear Science and Engineering Act

<http://www.ieeeusa.org/forum/POSITIONS/nucleareducation.html>

- Encryption Policy

<http://www.ieeeusa.org/forum/POSITIONS/encryption.html>

- U.S. Government Advisory Entities Concerned With Health-Related Issues

<http://www.ieeeusa.org/forum/POSITIONS/healthadvisory.html>

For a complete listing of IEEE-USA Position Statements, visit: <http://www.ieeeusa.org/forum/POSITIONS/>

IEEE FELLOW RECEIVES FIRST GORDON PRIZE

The National Academy of Engineering (NAE) presented two of engineering's top prizes at a gala awards ceremony in Washington, D.C., during National Engineers Week. Dr. Eli Fromm, an IEEE Fellow and former IEEE-USA Congressional Fellow, received the first Bernard M. Gordon Prize, given for inventiveness in engineering and technology education. As a 1980 IEEE-USA Congressional Fellow, Fromm served the U.S. Congress on an assignment to the House Science Committee. IEEE-USA President LeEarl Bryant and 2000 IEEE President Bruce Eisenstein attended the NAE awards ceremony. For more information on Fromm and the NAE awards, visit:

<http://www.nae.edu/nae/naehome.nsf/weblinks/LRAO-57HK3U?OpenDocument>

For more information on the IEEE-USA Congressional Fellows program, visit: <http://www.ieeeusa.org/forum/GOVFEL/congfel.html>

IEEE-USA PRESIDENT'S COLUMN: WITHOUT ENGINEERS, THE WORLD STOPS IEEE-USA

President LeEarl Bryant sees National Engineers Week (17-23 Feb.) as an opportunity to celebrate engineers and their accomplishments, get young people interested in math and science, and increase the public's awareness of the profession. To read more, visit:

<http://www.ieeeusa.org/newspubs/presidentscolumn/bryantfeb02.html>

IEEE-USA MEMBER SURVEY RANKS SHAPING PUBLIC POLICY FIRST

In a scientific survey of U.S. IEEE members conducted this winter, 84 percent of the respondents indicated that it is either "very important" or "somewhat important" to them that IEEE-USA works to shape public policy on behalf of its members. The respondents were most familiar with the public-policy work IEEE-USA does in the areas of information, employment benefits and energy. A slightly smaller percentage, 81 percent, attached this significance to the variety of activities, products and services IEEE-USA offers to help members build their careers. Respondents were most familiar with the IEEE-USA's salary survey and salary work book as well as its award programs and job site. Further, 80 percent of the respondents indicated that it is either "very important" or "somewhat important" to them that IEEE-USA provides members with the print, e-mail and online publications that the unit offers. The largest percentage of respondents, 92 percent indicated that they were satisfied with the job that IEEE-USA does overall in communicating about its products and services to members. The survey was conducted from November 2001 through January 2002 by Lewis & Clark Research in Raleigh, NC, for the IEEE-USA Communications Committee, and was based on 326 returns, a 33 percent response rate.

The VMS Web Site

Browse to:

<http://www.ewh.ieee.org/r3/virginia-mountain/>

It has a wealth of information about the Section and the IEEE not generally available through other sources. It is also an easy way to access other IEEE National or Region Sites and services. Your feedback and input are always welcome. Send it to me: editor

<mailto:j.fennick@ieee.org>

2001-2002 MEETING SCHEDULE

DATE	SPEAKER/TOPIC	MEETING PLACE
September 20 Spouses' Night, 2001	M. von Spakovsky Fuel Cell Technology	Clarion Hotel Roanoke
October 18* (Joint MTTD)	Louis J. Guido Semiconductor LEDs and Lasers: Past, Present, and Future	Clarion Hotel Roanoke
November 15	T. Rappaport Trends in Wireless Communications	Clarion Hotel Roanoke
January 17	Student Projects Details: TBD	Clarion Hotel Roanoke
February 21	Kumar Krishen New Technology Innovations for Space Applications	Clarion Hotel Roanoke
March 21 Spouses' Night, 2002*	Robert Trew Technology Future Directions	Clarion Hotel Roanoke
April 18	Otto Szentisi Fiber Optic Network Development	Clarion Hotel Roanoke
May 16	Plant Tour	TBD

* Changed

IEEE Virginia Mountain Section

VMS OFFICERS

Chairman: Howard J. Moses
<mailto:Mmoses@ieee.org> (540) 953-5069
Vice Chairman: Mark Shepard
<mailto:MShepard@ieee.org> (540) 387-8710
Sec./Treasurer: Shawn Addington
<mailto:AddingtonJS@mail.vmi.edu> (540) 464-3961

VMS EXECUTIVE COMMITTEE

Bill Tranter
<mailto:btranter@vt.edu> (540) 552-0759
John Fennick
<mailto:j.fennick@ieee.org> (540) 552-0052
Ira Jacobs
<mailto:ijacobs@vt.edu> (540) 231-5620
David Livingston
<mailto:d.livingston@ieee.org> (540) 464-7545
Junior Past Chairman:
Dave Kingma
<mailto:dkingma@ieee.org> (540) 552-3011 ext 304
Virginia Council Representative:
David Geer
<mailto:d.geer@ieee.org> (540) 387-7359

VMS CHAPTER CHAIRS

Industry Applications
Cy Harbourt
<mailto:tallswimr@aol.com> (540) 387-8941
Industrial Electronics/Computer/Control Systems
David Geer
<mailto:d.geer@ieee.org> (540) 387-7359
Microwave Theory & Techniques/Electron
Dain Miller
mailto:dain_miller@ieee.org (540) 563-3998

COMMITTEE CHAIRS

Awards:
Ira Jacobs
<mailto:ijacobs@vt.edu> (540) 231-5620
Education:
Russell Churchill
<mailto:arcova@swva.net> (540) 731-0655
Membership Development:
Dan Jackson
<mailto:d.jackson@ieee.org> (540) 231-5620
Nominations:
Dave Kingma
<mailto:dkingma@ieee.org> (540) 552-3011 ext 304
PACE :
 Vacant
Program :
Mark Shepard
<mailto:MShepard@ieee.org> (540) 387-8710
Publicity :
Dave Kingma
<mailto:dkingma@ieee.org> (540) 552-3011 ext 304
Student Activities:
David Livingston
<mailto:d.livingston@ieee.org> (540) 464-7545

NEWSLETTER

Editor: John Fennick
<mailto:j.fennick@ieee.org> (540) 552-0052
e-mail Newsletter Subscription

Go to the VMS Web Site page:
<http://www.ewh.ieee.org/r3/virginia-mountain/misc/SignUpForm.html>

Anyone may submit material for the Newsletter Deadline:
Monday following each meeting

Submit To: Editor

Change of Address

US Mail: IEEE Service Center
 445 Hoes Lane, PO Box 1331
 Piscataway, NJ 08855-1331
<mailto:address.change@ieee.org>
 Tel: 800-678-IEEE
 Fax: 732-981-9667
 IEEE Web:

<http://services1.ieee.org/membersvc/coa/intro.htm>
 (Changes are forwarded to the Newsletter)

Visit the VMS WEB page:

<http://www.ewh.ieee.org/r3/virginia-mountain>

- Sign on to our mailing lists.
- Section/Chapter meeting notices, and reports.
- Past issues of the Newsletter,
- PACE Patter, etc.
- Articles, organizations, and activities affecting our profession.
- Suggest Meeting Topics and Speakers.
- Links to IEEE, etc.
- Contributions welcomed - make them on-line.