IEEE
ELECTRON DEVICES SOCIETY
Newsletter

APRIL 2012 VOL. 19, NO. 2 ISSN: 1074 1879 EDITOR-IN-CHIEF: NINOSLAV D. STOJADINOVIC

Table of Contents

Paul K.-L. Yu New EDS President

Paul K.-L. Yu
EDS President

During the EDS AdCom meeting series, held in conjunction with the 2011 IEEE International Electron Devices Meeting (IEDM), Paul Yu became the 23rd President of the Electron Devices Society, taking over from Renuka Jindal. Paul is looking to build on the successes of his predecessors and plans to continue to expand the breadth and depth of all that EDS does and offers to its Members.

Paul Yu was born in Hong Kong, on July 12, 1957. He received a B.S. in Physics, M.S., and Ph.D. in applied physics from Caltech, Pasadena, California in 1979, and 1983, respectively.

In 1983, he joined the Electrical and Computer Engineering Department at the University of California, San Diego and has been a professor there since 1993. His research work is mainly in the area of optoelectronic semiconductor devices for digital and analog optical communications. In particular, he worked on high power waveguide photodiode, traveling wave electro-absorption

(continued on page 36)

2012 IEEE Photovoltaic Specialists Conference (PVSC)

Austin Convention Center, the 38th IEEE PVSC venue

We invite you to join us for the 38th IEEE Photovoltaic Specialists Conference (PVSC), being held June 3–8, 2012, in Austin, Texas. Now entering its second half-century, the PVSC has secured its place as the world's foremost technical conference uniting PV scientists, engineers and key industry stakeholders. Our unparalleled technical program spans the full gamut of PV, from fundamental science to installed systems. Additionally, our industrial exhibition draws participants from leading developers of the manufacturing

(continued on page 6)

SAVE THE DATES!

Spring EDS AdCom Series

June 2–3, 2012

Leuven, Belgium

EDS Distinguished Lecturers Participate in the 30th WIMNACT – Coimbatore, India

A series of EDS Distinguished Lecturers (DL) and Mini-Colloquia (WIMNACT-30) was organized by the ED Madras Chapter and Sri Ramakrishna Institute of Technology, Coimbatore, India, December 30, 2011. This is the 30th WIMNACT in its series. There were four technical lectures in the workshop: Hiroshi Iwai of Tokyo Institute of Technology, E. Chang of NCTU, Chandan Sarkar of Jadavpur University and N. Mohan Kumar of SKP Engineering College. The institute's management team organized the event, which attracted approximately 300 participants to the one-day program. WIMNACT-30 was the first such event on nanoelectronics technologies held at the institute, providing light on new technologies to students.

Speakers and participants of WIMNACT-30 held in Coimbatore, India

N. Mohan Kumar
ED Madras Chapter Chair
SKP Engineering College
Tamil Nadu, India

Hiroshi Iwai
IEEE Division 1 Director
Tokyo Institute of Technology
Tokyo Kanagawa, Japan

EDS-ETC

Engineers Demonstrating Science:
an Engineer Teacher Connection

Report From the AP/ED/MTT/COM/EMC Tomsk Chapter

In November 2011, the 10th anniversary of the All-Russian Student Olympiad on Electronics was held in conjunction with the Conference "Electronic Devices, Systems and Technologies" for students, postgraduates and young researches. The Olympiad takes place annually at the National Research Tomsk Polytechnic University with the support of the IEEE Tomsk Joint Chapter and Student Branch.

The youth marathon using Elenco Snap Circuits™ kits, generously provided by the IEEE Electron Devices Society, were employed at the Olympiad for the first time. Five teams competed in the design of high-speed circuits and industrial automatic circuits of various complexities.

Two student teams named "Pofigistors" and "Lamps & Diodes" successfully solved the problems.

The participants were very impressed with the Snap kits. The great success of this event surpassed all previous contests of the past 10

Young researchers assembling the circuits by using Snap kits

years. We have more ideas for using these kits for future contests and conferences for students and scholars. Many thanks to EDS for a brilliant idea with the EDS-ETC Program and its implementation within the frameworks of the projects of the IEEE units in Tomsk.

Oleg Stukach
Tomsk Joint Chapter Vice-Chair
Tomsk Polytechnic University
Tomsk, Russia

QuestEDS

Samar Saha
EDS Vice-President of Publications

Interested in knowing why it's not possible to measure the built-in voltage of a PN junction using a voltmeter? Do you need to understand the best way to derive an expression for the average thermal velocity of an electron? Or are you curious about what quantum dots and wires are? The answers to these questions and more are available through the QuestEDS Question and Answer page.

To ask a question not already addressed on the Q&A page, visit www.ieee.org/go/questeds. Technical experts answering the questions posed represent academic, government, and industry sectors.

Questions are grouped into nine technical categories and two general ones. Technical categories cover subject areas like semiconductor and device physics, process technology, device characterization, technology CAD, compact modeling, VLSI interconnects, photovoltaics, and quantum electronics. Subject areas addressed are anticipated to expand in the future. Two other categories address questions pertaining to educational activities and general inquiries about society membership. Within a two week time frame from when the question is asked, an answer is posted online. Incoming questions are handled by an editor-in-chief who ensures that they fall within the technical scope of EDS and that they are adequately answered.

Quantum Electronics
Question 054-11 *While solving the Schrodinger's equation for harmonic oscillator by series method, we have to truncate the series after a finite number of terms (n) to get physically acceptable solutions. This leads to quantization of energy levels. Since the series is truncated after a finite n, the number of energy levels should also be finite. But, invariably all the available literature shows that there are infinite numbers of such quantized energy levels (n = 0,1,2,3,....). Why?*
Photovoltaics
Question 055-12 *Has there been proven any efficiency increase in a solar cell due to the intermediate band or multi-exciton generation?*
Question 056-12 *With such a large degradation rates, are organic solar cells a real alternative nowadays? Taking this into account, they do not seem very useful, or cheap, for rural applications as they must be substituted quite often.*

For the answers to these recent submissions, visit http://eds.ieee.org/questeds/question-and-answer-page.html. Your IEEE login is required to view the answer page. After authentication you will be redirected to the answer page, where you can select the appropriate topic link.

Samar Saha
EDS Vice-President of Publications
SuVolta, Inc.
Los Gatos, CA, USA