SOFE-2017: Symposium on Fusion Engineering

Join us in Shanghai! 4th–8th June 2017

Every two years, the IEEE Symposium on Fusion Engineering (SOFE) attracts fusion engineers and scientists from around the world to exchange information and keep up to date with the latest advances in fusion research and development. In 2017, the Symposium will move outside the United States for the first time in its 52-year history. The 27th SOFE will be held in Shanghai, one of China’s most vibrant and cosmopolitan cities. The decision by the Fusion Technology Standing Committee (FTSC) to go to China recognizes the rapid growth in fusion research and advanced engineering in that country, and the growing participation of Chinese researchers in SOFE in recent years.

A highlight of the 2017 SOFE will be a special emphasis on education, both for students and for experienced researchers wishing to broaden their knowledge. The conference will offer five minicourses on topics of timely importance in the field: Plasma-Material Interactions, Stellarators, Plasma Diagnostics, Fusion Radiation Effects on Electronics, and Inertial Fusion Energy. To encourage students to attend and present their work at SOFE, the conference has established a fund to help with their travel and registration expenses. And a concerted effort is under way to raise awareness of the Best Student Paper Award and its ultra-simple application procedure; namely checking a box on the abstract submission form! Applicants for the participation grants or student paper award must be IEEE student members to be eligible. Along with support for students, we will also recognize our experienced researchers and leaders by announcing the recipients of Fusion Technology Awards for both 2016 and 2017.

The 2017 Symposium will offer an exciting social program for attendees and companions, providing glimpses of Chinese cuisine and culture. A Welcome Reception, Women in Engineering Reception, Conference Banquet, and tours of Shanghai and nearby venues will make this historic SOFE a memorable one.
A Special Message from the 2015 and 2017 ANIMMA Chairman

Abdallah Lyoussi  
General Chair 2015, 2017

Dear Colleagues and Friends,

Nuclear instrumentation and measurement are key aspects that contribute to the quality of scientific programs in the fields of physics, energy, fuel cycle, waste management, safeguards and homeland security. Furthermore, measurements relying on nuclear physics now play an important role in various fields of application such as biology, medicine and the environment.

Since the first conference in 2009, the ANIMMA* international conference continues to provide an excellent opportunity to get together with colleagues, partners and friends to exchange ideas and share knowledge and experience in nuclear instrumentation, measurement methods and nuclear experimental sciences in general. The ANIMMA Conference has grown, from the beginning, to create a special meeting place for all those working in nuclear instrumentation and its applications as we strongly believe that cross-border exchanges among scientists, engineers and industrialists can only lead to the most thoroughly developed ideas, the best solutions and the most efficient collaborations and partnerships. ANIMMA continues to maintain a high level of scientific and technical quality by presenting not only the latest advances but also the state of the art in each field through the participation of international specialists and experts. It is an ideal meeting ground for scientists and engineers in the fields of nuclear measurement, instrumentation in areas such as media, radiation instrumentation, software engineering, data acquisition analysis and treatment, and related applications to present their work and network with their colleagues from around the world.

ANIMMA 2015 was a success thanks to your contributions and to your participation and also many thanks to local organizers as well as ANIMMA committees, partners and sponsors. More than 350 presentations and posters were presented and discussed in addition to a regular exhibition with over 10 stands from industry and research institutes. Over 400 participants attended the conference. Short-courses and workshop initiatives were also very successful.

Finally I would like to thank all attendees for having made this scientific event a success.

Looking forward to meeting you at ANIMMA 2017

Abdallah Lyoussi, General Chair, ANIMMA 2015 and 2017, can be reached by E-mail at Abdallah.lyoussi@cea.fr

ANAIMA International Conference
Liège, Belgium, June 19th - 23rd, 2017

The fifth international conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications (ANIMA) is being organized by SCK-CEN, the Belgian Nuclear Research Center, in partnership with CEA (French Atomic and Alternative Energies Commission), Am University and is scientifically cosponsored by IEEE/NPSS. It is the successor to the previous highly successful conferences: Marseille (2009), Ghent (2011), Marseille (2013) and Lisbon (2015). ANIMA 2017 will take place from 19th to 23rd June 2017 at the Palais des Congrès in Liège, Belgium. Liège is located on the river Meuse, less than 100 km from Brussels and can be reached easily by plane, train or car.

The conference deals with nuclear instrumentation and measurements in various application fields such as:

- Fundamental physics
- Fusion diagnostics and technology
- Advanced Nuclear Energy Systems
- Research reactors
- Nuclear fuel cycle
- Decommissioning, dismantling and remote handling
- Safeguards, homeland security
- Severe accident monitoring
- Environmental and medical sciences
- Education, training and outreach

The ANIMA Conference brings together scientific, academic and industrial communities interested, or actively involved in research and developments related to nuclear instrumentation and measurement methods. The program is focused on instrumentation, but emphasizes the latest developments in all measurement stages: nuclear radiation detection and measurements, modeling, electronics, signal acquisition and analysis, interpretation and associated training/education activities.

ANIMA offers an outstanding opportunity for scientists and engineers to meet and discuss new ways to address complex problems and find advanced solutions in nuclear instrumentation and measurement sciences and technologies.

The conference will include plenary talks by distinguished speakers, invited and oral presentations; poster session contributions will be supported by intensive oral presentations in parallel sessions. On the day before the main conference, workshops on several hot topics will be organized, as well as a one-day short courses session, leading students from the basic physics through a selection of advanced nuclear instruments and applications. Throughout the entire conference, a technical exhibition will be available to the participants. There is also an opportunity to organize satellite meetings within the scope of the conference.

You are strongly encouraged to submit abstracts via the conference website http://www.anima2017.org. All papers presented at the ANIMA 2017 meeting whether oral or poster, will be published in the Conference Record. The Conference Record (CR) is the official repository for manuscripts presented at the ANIMA 2017 Conference and will be available to all registered Conference attendees as a file for download. The CR will also be submitted to IEEE Xplore for formal publication. In addition extended papers may be submitted to the regular IEEE Transactions on Nuclear Science or the IEEE Transactions on Plasma Science for peer review and archival publication.

As in 2015, we will promote the young generation by selecting the two best student papers for a special award.

KEY DATES

Abstract submission deadline: November 4, 2016
Notification of acceptance: March 10, 2017
Final paper submission deadline: June 1, 2017
Open registration: January 5, 2017

CONTACT

General Chair: Prof. Abdallah Lyoussi  
Abdallah.lyoussi@cea.fr

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mschyns@sckcen.be

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*ANAIMA 2015 and 2017 can be reached by E-mail at Abdallah.lyoussi@cea.fr
The ICOPS 2016 IEEE Women in Engineering (WIE) event was a great success, attended by over 70 students and other researchers.

At this event, Dr. Christine Coverdale (Sandia National Lab), Dr. Mingzhong Wei (General Atomics) and Dr. Manisha Gupta (University of Alberta) shared with the audience their experiences as female scientists and engineers in work and life. After the talks the attendees enjoyed the good food and drinks and mingled with the speakers and each other. The IEEE NPSS Young Professionals event at ICOPS 2016 was a student and young researcher poster symposium. This was a pilot project supported financially by the NPSS YP initiative. The purpose of the event is to help in connecting and enhancing interactions among students and young researchers and potential employers. The event was well attended by students and young researchers, other conference attendees, and representatives from over 20 organizations including industrial companies, government laboratories, and universities. The event started with a motivating talk by Dr. Kevin Ilcisin who received his doctoral degree in plasma science from Princeton University and is Vice President of National Instruments. After the keynote speech, student and young researchers from around the globe presented their work and mingled with potential employers.

The event also featured an outstanding paper award, the Outstanding Student award, and the Igor Alexeff Outstanding Young Professional award. The Young Professionals event with guest speaker.

Dr. Christine Coverdale receiving the PSAC 2016 Award.

Dr. Mingzhong Wei
General Atomics

Christine Coverdale
Sandia National Lab

Dr. Manisha Gupta
University of Alberta

Amanda Lovelace was presented the Outstanding Paper award

Bret Scheiner, David Yager-Elorriaga, Vighneswara Siva Santosh Kumar Kondeti received awards for best paper

Student Poster Session.

Ying Tsui received enthusiastic applause and a plaque for chairing ICOPS 2016

2016 IEEE Igor Alexeff Outstanding student award was presented to Andreas Schlaich.

PRESENTS OF MIND
The books we think we ought to read are poky, dull and dry;
The books we would like to read we are ashamed to buy;
The books that people talk about we can never recall;
And the books that people give us, oh, they’re the worst of all.

Carolyn Wells

AHEAD OF HIS TIME
War must be made as deadly to the civilian population back home as it is for the troops in the front lines. Let the sword of Damocles hang over every head, gentlemen, and you will witness a miracle – all wars will be stopped instantly if the weapon is called bacteriology.

Alfred Nobel

MUTUAL UNDERSTANDING
We were in agreement that the danger of nuclear war was great, but Teller meant that the danger was great if the U.S. government should listen to me, and I meant the danger was great if the U.S. government should listen to him.

Leo Szilard

SAUCE FOR THE GOOSE
Of course scientists have been told to be socially responsible. Of course, I think society ought to be socially responsible too.

Sydney Brenner (Nobel Laureate)
This is my final report as NPSS President, and it has been quite a ride. In looking back, NPSS has accomplished many things. We saw both the Particle Accelerator Science and Technology (PAST) and Pulled Power Committees move from appointed to elected status. Both have seen volunteer participation and enthusiasm increase, and quality leadership emerge. We have also seen the enhancement of our existing journals, Transactions on Plasma Science and Transactions on Auditor Science, with monthly curated email blasts highlighting a few papers; and providing temporary open links to those papers. In addition, the creation of the IEEE Transactions on Radiation and Plasma Medical Sciences (TR-PMS) with our partners in the IEEE Engineering and Computer Applications Technical Committees also elected new members. These will be reported by the technical committee chairs.

As 2016 drew to a close, we wish you all the happiest, healthiest holiday season and a bright New Year, and urge your continued support and participation in NPSS activities.

We hope to clarify the ethical process, so that participants understand the importance of delegating any decisions governing the process when they are also participants. This is crucial for retaining your trust, and for ensuring the emergence and survival of the strongest ideas in the crucible of public discussion.

I do not yet know what role, if any, I might have in building the future of the IEEE, but I hope many of you will be motivated to volunteer and make a difference, which is indeed the fundamental purpose of the IEEE. I also ask for your support for my successor, affirmed at the November NPSS Administrative Committee meeting, Vice President Stefan Stein. Stefan brings new ideas and new initiatives to NPSS, and I look forward to continuing to work with him.

I am grateful to all those who mentioned and advised me these past years, including the NPSS senior leadership team of Hal Fischler, Peter Clout, Bill Moses, Craig Woody, Jane Lehr, and Albe Larsen. A special thanks go to my predecessor, Janet Barth, who set a great example and provided excellent advice and opportunity. Thanks to Ron Keyser, whose dedicated service as Treasurer led to many fiscal improvements; and hand the treasurers to Ralf Engels. Finally, I would like to thank the NPSS membership for your trust, attention and support over the past two years, it has been a great honor for me to do my small part.

Sincerely,

John Verboncouer, NPSS President
John Verboncouer, IEEE NPSS President, can be reached at johnv@msu.edu

NPSS NEWS

SOCIETY GENERAL BUSINESS

NPSS News

Secretary’s Report

NPSS News

President's Report

NPSS News

Technical Committees

NPSS News
TRIPMS will be published in cooperation with the Engineering in Medicine and Biology Society (EMBSD) and will be indexed in PubMed. The journal is a long-awaited development with the aim of creating a unique publication related to the application of radiation and plasma sciences within the medical field. Topics covered correspond to the areas covered by the research themes of NMSCE and the Medical Imaging Conference – radiation detectors for medical and biological applications; imaging system design/optimization/ performance; therapy-related system design/optimizations/ performance; PET/ SPECT/CT image reconstruction; data analysis and image processing; medical radiation therapy applications; clinical/technical evaluation of imaging and therapy systems; simulations for imaging and therapy applications. Educational material such as technical/clinical review papers covering these areas will also be included. We strongly encourage authors to submit their work to TRIPMS at https://mc.manuscriptcentral.com/tripms.

Paul Marsden
Chair, Nuclear Medical and Imaging Technical Committee

RADIATION EFFECTS NEWS

Annual report from the Radiation Effects Committee – July 2016

Allan Johnston, I-K Associates, is the present Chair of the Radiation Effects Steering Group, which oversees NSREC Conferences. The IEEE Radiation Effects Awards Committee (RESC) held its annual Open Meeting on July 12th, 2016, at the Oregon Convention Center, Portland, Oregon, during the 2016 Nuclear and Space Radiation Effects Conferences (NSREC). The meeting included presentations from the general chairs of the 2015 through 2017 NSRECs. An election was held during the Open Meeting for a new Junior Member-at-Large to the Radiation Effects Steering Group (RESC). The RESC welcomed Ethan Carron, Boeing, as the newly elected Junior Member-at-Large. Ethan joins Simone Carada, University of Padova and Tom Turffinger, AEROSPAC Corporation, who are serving as Senior Member-at-Large and Member-at-Large, respectively. During the Open Meeting, Allan presented an award to Sylvain Girard, Université de Saint Etienne, the outgoing Senior Member-at-Large. Awards were also presented to Kay Chesnut, Boeing, for her service as an elected member of AdCom, and Martha O’Byrne, for her service in developing and updating the NSREC website.

FUNCTIONAL COMMITTEES

Craig Woody
Awards Committee Chair

AWARDS

We are now soliciting nominations for our NPSS Awards for 2017. NPSS offers a number of awards for exceptional contributions to our field or our Society. These range from the highest IEEE level awards, such as the IEEE Medal for Healthcare Innovation and Technology and the IEEE Marie Skłodovska-Curie Technical Field Award, to various Technical Committee and Conference awards. Information about all of the awards can be found on the NPSS website http://www.ieee.org/soc/npss/awards.html. The due dates for nominations vary according to the award, but the NPSS Society-level awards are generally all due at the end of January of next year. However, it takes time to put together an effective nomination, so it’s time to start thinking about possible candidates and working on those nomination packages before the end of the year. Tips on how to write a successful nomination are given on our website.

A number of grants sponsored by NPSS are designed to help students and young researchers in our field. Starting in 2017 we will be offering two new grants for our younger members. These are the Glenn F. Knoll Graduate Education and Post

Doctoral Education Grants: These two new grants were made possible by the generous donations of Mrs. Gladys Knoll, widow of our well known and beloved educator and long standing member of NPSS, Prof. Glen Knoll, and Dr. Valentin Jordanov, former of Prof. Knoll’s highly successful students. These grants are intended for outstanding graduate students and postdocs in the field of nuclear science instrumentation, medical instrumentation, or instrumentation for security applications to support travel and attendance to conferences, workshops or summer schools, on special research projects. Details on how to apply for these grants will be given on the NPSS Awards website. There are also various other grants available for NPSS members. The Paul Philips Continuing Education Grants provide funds for postdocs and unemployed NPSS members to cover the cost of tuition and other expenses for Short Courses offered at NPSS conferences. We also offer NPSS Student Paper Awards for outstanding student contributions at many of our conferences. Details on how to apply for these awards and the Philips Grants are also given on the NPSS website. There are also numerous Technical Committee awards, as well as conference awards and travel grants, that are related to specific Technical Committees and conference awards. Details for these awards are found on the individual conference or Technical Committee websites.

Please start thinking about nominating one of your colleagues, or yourself, for one of many NPSS awards, or grants. The nomination forms are on the website for some of the awards, just check the details to be sure. The deadlines approach rapidly by the end of the year and it takes time to put together a good nomination package. It’s a great opportunity to recognize some of the many outstanding colleagues in our field and to raise the level of prestige of our Society.

Craig Woody, Chair of the NPSS Awards Committee, can be reached by e-mail at woody@bnl.gov.

Meet the 2016 CANPS Award Winner, Roger Lecomte

Every two years, at the Real-Time Conference, the Computer Applications in Nuclear and Plasma Sciences technical committee honours the winner of the CANPS Award. This year, the long list of distinguished awardees got extended with the name of Roger Lecomte from the Université de Sherbrooke, Quebec, Canada.

Indeed, Roger has a long list of outstanding contributions to the field of PET and Medical Imaging in general. He received his PhD in Experimental Nuclear Physics from the Université de Montréal, and began to build a team of scientists and engineers at the Université de Sherbrooke in 1981, working on advanced, small-animal, medical imaging devices based on Photon Emission Tomography. Together with Dr. Robert J. McIntyre, inventor of the Avalanche Photodiodes (APDs) at RCA Optoelectronics, he pioneered the development of solid-state detectors for PET, and went on to implement them in the highly successful Sherbrooke APD PET scanner for high resolution small-animal imaging. He also introduced new ideas and new techniques, such as depth-of-interaction (DOI) and physical response modeling in tomographic reconstruction, which set new standard for PET imaging that stand to this day. The innovative compact analog and digital readout, combined with the user-friendly software environment, delivered the breakthrough that allowed the field of small-animal PET to take off.

The short course should be of interest to both radiation effects specialists and newcomers to the field.

For the most current information on the Nuclear and Space Radiation Effects Conference, including information on paper submission, please visit www.nperc.com.

Allen Johnston
Chair, Radiation Effects TC

For further information contact either Allan Johnston, RE Chair at johnstonah25@gmail.com or Teresa Farris, VP Publicity at teresa.farris@cabham.com.

ALL IN A GOOD CAUSE

Learning carries within itself certain dangers because out of necessity one has to learn from one’s enemies.

Leon Trotsky

HOW ABOUT POLITICIANS?

The quality of our thoughts is based on all sides by our facility with language.

J. Michael Szesnyowski

NO GEOGRAPHY LESSON NOW

The trouble with our age is that it is all signpost and no destination.

Louis Kriemenger

Craig Woody
Awards Committee Chair


Hopefully everyone is now aware of the new NPSS journal IEEE Transactions on Radiation and Plasma Medical Sciences (TRPMS) and the first, January 2017, edition should appear imminently.

Allan announced the general chairs for upcoming NSRECs: Venetique Fefel-Cavaco, European Space Agency, Ronald Lacoe, The Aerospace Corporation, and John Stone, Southwest Research Institute, for the 2017-2019 NSRECs, respectively. Robert Reed, Vanderbilt University, 2016 Conference General Chair, summarized some statistics for the 2016 conference. A total of 457 people attended the technical sessions and 280 people attended the short course. In addition, 72 exhibitor staff and 146 guests were registered. The technical sessions were very strong, with 156 papers presented during the four-day conference (49 oral presentations, 54 posters, and 53 Data Workshop). There were four outstanding tutorial sessions given during the Short Course on July 4th. Short course attendees also received a CD and memory stick of the Short Course presentations. The industrial exhibit, which had 49 exhibitors, was well attended.

Véronique Fefel-Cavaco, European Space Agency, 2017 Conference General Chair, announced that NPSS will be held July 17th – 21st, at the Marriott, New Orleans. This conference will feature a technical program consisting of ten sessions of contributed papers (both oral and poster) that describe the latest observations and research results in radiation effects, a Radiation Effects Data Workshop, and an industrial exhibit. Attendees will also have the opportunity to participate in a one-day Short Course on Monday, July 17th. The theme for the short course prepared by Jonathan Pollin, NASA/CSCF, is “Hardness Assurance for Satellite Systems: From Macro to Nano-Satellite.” The short course promises include: 

> Christian Pokey, European Space Agency
> Ray Ludhby, NASA/CSCF
> Michael Swartwout, Saint Louis University
> Dave Roth, Johns Hopkins Applied Physics Lab

Roger Lecomte receives CANPS Award, presented by Martin Purscke (right), CANPS chair.

The trouble with our age is that it is all signpost and no destination.

Louis Kriemenger
Today, Roger’s group is working at the forefront of developing new technologies, chiefly in imaging PET with spectral CT imaging, and in the quest for “Time-of-Flight PET,” the next frontier. The goal is to achieve timing resolutions well below 100 ps, which will allow large gains in sensitivity (or an equivalent reduction of the applied dose), and could even eliminate the image reconstruction stage in some applications.

Over the past 25 years, Roger has built an impressive network of scientific collaborations at the local, national and international level and continues to pursue R&D endeavors with industrial partners and other laboratories. He has educated and trained a large number of scientists who have meanwhile become leaders in the field in their own right. Virtually every year, at least one of his students receives a student or similar award for their outstanding contributions to the field of medical imaging. They follow the footsteps of their mentor, who was awarded recognitions and honors in every one of the last ten years, including the 2015 Lionel-Boulet Scientific Award, which is the highest distinction of the Government of Quebec for scientific research and industrial development, and the 2009 J.-Armand-Bombardier Award for technology innovation in medical imaging.

Please join us in congratulating Roger once more for receiving the well-deserved CIMP’s award 2016.

Citation: For contributions of real time techniques in the field of Positron Emission Tomography.

FUSION TECHNOLOGY AWARD

The Fusion Technology Standing Committee (FTSC) is pleased to announce that Dr. Wayne Meier is the recipient of the 2016 Fusion Technology Award, to be presented at the upcoming Symposium on Fusion Engineering (SOFE), being held in Shanghai, China, June 4th – 8th, 2017.

The award cites Wayne’s outstanding record of accomplishment and leadership in advancing the science, technology, and integrated assessment of inertial Fusion Energy power plants, as well as his distinguished service to the fusion community through the ENEF, the American Nuclear Society, and other important technical forums on fusion science and technology.

Wayne received his Ph.D. in Nuclear Engineering (emphasis on fusion) from University of California, Berkeley, in 1984. His career has been dedicated to the advancement of fusion energy, and he has authored/co-authored over 150 technical publications primarily in the field of inertial confinement fusion. Prior to his recent retirement (9/16), he served as Deputy Program Leader of the Fusion Energy Sciences Program (FESP), as well as Associate Program Leader, Fusion Materials and Technology, at Lawrence Livermore National Laboratory.

Wayne has contributed to many important international missions, and he has been a leader in the development of a new generation of fusion applications. He has authored and co-authored over 150 technical publications primarily in the field of inertial confinement fusion. Prior to his recent retirement (9/16), he served as Deputy Program Leader of the Fusion Energy Sciences Program (FESP), as well as Associate Program Leader, Fusion Materials and Technology, at Lawrence Livermore National Laboratory.

In addition to his technical achievements, his enduring commitment to the ENEF is noteworthy. He served on the FTSC for a decade, on the organizing committees of several SOFE conferences, and as the General Chair of the very successful 29th SOFE held in San Francisco in 2013.

The FTSC is very pleased to recognize Wayne’s achievements that truly exemplify the spirit of the award and the mission of the FTSC.

The FTSC awards http://ieee.org/npss/technical-committees/fusion-technology/ are presented at each biannual SOFE, one for each calendar year of the two-year cycle with the first year corresponding to the year between SOFE conferences and the second year corresponding to the year of the SOFE conference at which the presentation is made. The call for nominations for the 2017 award will be issued on January 1st, 2017 and the nomination period will close on February 15th.

Charles Neumeyer, Chair of the Fusion Technology Standing Committee, can be reached by E-mail at Neumeyer@llnl.gov.

2016 IEEE/NPSS RADIATION EFFECTS AWARD

Jean-Luc Leray, CEA, received the 2016 IEEE/NPSS Radiation Effects Award

Throughout his technical career, within the French Atomic and Alternative Energies Commission labs (CEA), Jean-Luc Leray has been working with government, industry and university laboratories to develop an understanding of the effects of the nuclear and space radiation environment. During the nineteen eighties and nineties, this application-oriented work led to the development of radiation-tolerant, radiation-hard, reliable devices and circuits based on ion sensitive silicon (CIS) and silicon-oxide-insulator silicon (SOI) technologies.

One of the several versions of SOI developed within industry and laboratory collaboration was used to build the core detector of the Atlas detector of the Large Hadron Collider (LHC) at CERN near the target of the collider where the showers of particle emerge (i.e., the tracker instrument). The radiation levels encountered here were unprecedented, both of the theoretical physics analyses and experimental solutions that allow proper design of hardened circuits led to the award to Jean-Luc of a national grand prize for electronics “General FERRE” for radiation hardening of microelectronics technologies (1994). Some results of these developments, in the field of basic mechanisms and simulation of total ionizing dose effects in microelectronic structures (10, 20, 30) are mentioned in the IEEE NSREC Short Course in 1997 and subsequent IEEE Transactions on Nuclear Science papers presented by the team. Outside the radiation-specialized applications, after these first large-scale demonstrations of reliability, the SOI technologies gained larger interest. They later reached the wider market of low power as well as high-performance consumer and computing products, and entered into the de-cennary nodes.

Transnationally, Jean-Luc and his team at CEA were instrumental in fostering the links between the European International NAIPECs community (Radiation Effects in Electronic Components and Systems) and the IEEE (the NSREC, the Radiation Effects International Community). He was the technical chair of the second international NAIPECs conference (1993) where the international participation increased and he chaired the 2007 conference in Deauville. He founded the French NPSS Chapter in the Section of the IEEE in 2001 and was twice elected Section Vice-president. In 2008, he was elected chair of the Transnational Committee of the CIEF, and in 2013, he especially strives at promoting European Membership and Student Section and Chapter creation.

At the CEA, he was named a Research Director in 2003, for leadership of research teams and projects and for a time he served as an Advisor of Technologies at the headquarters for Nanoelectronics, IT and HPC. Jean-Luc has contributed to over 100 peer-reviewed publications and over 200 proceedings and seminars. Since the 1990’s he regularly taught experimental nuclear physics, micro-nanoelectronics and radiation effects in several universities and institutions at the graduate level and continuing education courses. He is now active in the radiation-hardening activity for ITER, the international fusion reactor being built in France, with special attention considering the effects of single neutron interactions.

Citation: For contributions to the understanding of basic mechanisms of radiation effects in microelectronic devices, and to the development of radiation-hardened SOI technologies in Europe.

Jean-Luc Leray, 2016 Radiation Effects Award Recipient

Jean-Luc Leray can be reached by E-mail at Jean-luc.Leray@orange.fr
A Note From IEEE Smart Village

LIGHT AND EDUCATION COME TO MADAN, PAPUA NEW GUINEA

In the highlands of Papua New Guinea, 4,000 people of the Madan village talk like a big family. This time, a bright future was on everybody’s minds: 35 schools, three community centers, and the medical clinic are receiving light, power, and digital education.

In a three-stage project expanding to 40,000 people in the Waghi valley, a Sunblazer3 at every school will allow children to stream schoolbooks and educational videos from a local content server over a high-speed wireless network connecting the entire community. Teachers will receive renumeration training and build WordPress sites to share lesson plans and ideas. Preventative healthcare, and water/sanitation/ hygiene curricula will be rigorously implemented in each school to fight diseases and encourage healthy habits. In addition, each village is developing plans for clean drinking water systems and for effective sanitation systems.

For the Madan Medical Clinic (which currently serves 10,000 patient visits, provides 5,000 vaccinations, and delivers hundreds of healthy babies annually) the IEEE Smart Village project means more saved lives: nighttime emergency care, electric medical tools, vaccine refrigeration, and a remote diagnostics video link to the regional Nazarene hospital.

The community centers can now become efficient hubs of empowerment training in entrepreneurship, adult literacy, financial management, vocational skills, and gender equality. In the evening, LED lights shining through the windows of the community centers will draw together the people of Madan to learn, innovate, grow strong, and build their dreams.

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In a country where values are collapsing, patriotism becomes the handmaiden to totalitarianism. The country becomes the religion. We are asked to live in a state of religious fervor: Love America! Love it because America has become a substitute for religion. But to love your country indiscriminately means that critical distinctions begin to go. And democracy depends upon these distinctions.

Norman Mailer
The Mobile Wallet Factor: How Retailers Should Navigate the New Era of Chip Card Technology

By Ken Kunz

This month marks the one-year anniversary of the EMV (Europay, MasterCard and Visa) liability shift, which transferred the responsibility for fraudulent credit/debit card transactions from card companies to merchants that do not use EMV chip-enabled terminals.

There have certainly been happier anniversaries. This 12-month span has been marked by confusion and frustration. The rollout of chip-and-pin cards was not simultaneous, leaving many consumers without the right cards. Even with chip-and-pin cards, however, the payment experience has become convoluted. Attempts to insert the card into an EMV terminal slot are often stymied, and you end up having to swipe the card like before.

The authentication process also seems to take noticeably longer. In fact, if a consumer uses their credit card four times a day, they will spend five-and-a-half hours per year waiting for EMV transactions to go through.

Needless to say, the transition has not gone smoothly. This is not unexpected, as the U.S. is the largest card market to migrate to EMV technology. At the heart of this conflict are retailers, many of which have yet to upgrade despite the shift being announced five years ago in 2011. In fact, it is estimated that it will take until the end of 2017 before 90 percent of retailers are EMV ready.

Retailers can’t take all the blame, however. A recent survey found that among retailers that had upgraded their systems, most have been waiting for more than six months to achieve certification from credit card companies. The entire process is time-consuming: The National Retail Federation reports the average retailer takes 19 months to get EMV fully operational in their organization.

This, combined with the costs of upgrading (average costs for EMV-compliant card terminals are $200-500, which adds up quickly for large retailers), has left many retailers dragging their feet. It seems at least in the short term, many of them are willing to bear the brunt of fraudulent transactions than pull the trigger on this expenditure.

Many practitioners in the mobile industry are eager for retailers to fully embrace EMV, as it will significantly expand the number of terminals where contactless and Near Field Communication (NFC) mobile payments can be processed, in addition to chip-and-pin cards. Experts expect it to be the groundwork for a payments revolution that will see more consumers in the U.S. pay with their smartphones than cards or cash by 2020. These will largely be processed using mobile wallets like Apple Wallet, Android Pay and Samsung Pay, which increasingly are coming pre-installed on smartphones and smartwatches.

Over the past few years, we have seen a number of market forces driving the mobile wallet evolution. These include robust investments from Apple and Google, rapid consumer adoption of non-payment mobile wallet features like boarding passes and the runaway success of the Starbucks’ mobile wallet within its app. But there has been a missing link – the limitations to scan smartphones at the cash register. It stress doesn’t have the technology to accept mobile payments, mobile wallets can never truly “take off.”

At the onset of mobile wallets, they faced a chicken-and-egg problem. Retailers had little incentive to upgrade their POS systems to accept mobile payments because there were few phones with NFC chips installed. Smartphone makers, fully aware of the small footprint of NFC-supported systems, failed to see a reason to make space for the chip in their devices.

Now that NFC chips are a staple in smartphones and the EMV transition has incentivized retailers to toe the line, mobile wallets are well on their way to becoming powerful commerce platforms. Apple and Google have bolstered their mobile wallets and now both apps are capable of processing payment and loyalty information simultaneously. Adding offers to that mix is on the horizon.

Smart retail CDOs see where the puck is going and are upgrading to POS terminals that can support contactless loyalty transfer, in addition to mobile payments. Verifone and Ingenico are a few POS providers that meet these criteria. In cases where terminal upgrades have already been made, the provider should be able to add this functionality via an over-the-air software update.

Selecting a system with these capabilities offers other advantages beyond reducing fraud liability and delivering a better payment experience. At Vibes, we help loyalty teams and marketers at large retailers leverage mobile wallet for marketing purposes. By mobilizing their loyalty programs and offers in Apple Wallet and Android Pay, retailers can not only allow shoppers to get rid of plastic loyalty cards and print coupons, but also achieve business outcomes, such as driving in-store foot traffic, increasing basket size and improving loyalty.

Apple and Google have both indicated that the ultimate vision for checkout is a single tap that integrates the trifecta of payment, loyalty and offer data into one seamless experience. This vision is rapidly approaching reality, and retailers that orient the next generation of their POS infrastructure around mobile wallets will realize an even greater return on their investments.

Ken Kunz is the VP of Technology at Vibes, a mobile marketing leader. Ken leads all aspects of Vibes’ technology organization, including engineering, infrastructure, product and user experience.

The Board of the IEEE Foundation met in Piscataway, NJ on November 9th and 10th. A highlight of the meeting was the presentation of the IEEE Eric Herz Outstanding Staff Award to Karen A. Galuchie, the Foundation’s Executive Director. With the donation of the award’s honorarium to the Foundation, Karen also joined the ranks of the Foundation’s Heritage Circle. And with this gift she challenged IEEE staff to donate on November 29th, Giving Day, to match her gift.

News from the IEEE Foundation

The IEEE Smart Village volunteers also thank Karen for her support of this Signature Program of the Foundation.

Honor: For exceptional staff leadership and for support and service to IEEE volunteers in achieving the philanthropic objectives of the IEEE and the IEEE Foundation.

Leah Jameson, IEEE Foundation President, presents Karen Galuchie with Heritage Circle membership certificate.
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Photo Highlights from the 2016 NSS/MIC/RTSD

Cherry receives the IEEE Maria Sklodowska-Curie award from Bill Moses

Eckhart Eisen, NSS Program Chair, left, and Susanne Kuehn NSS Deputy Program Chair, right, with student paper award recipients.

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Publicity releases for forthcoming meetings, items of interest from local chapters, committee reports, announcements, awards, or other materials requiring society publicity or relevant to NPSS should be submitted to the Newsletter Editor by January 5th, 2017 for publication in the March 2017 Newsletter.

News articles are actively solicited from contributing editors, particularly related to important R&D activities, significant industrial applications, early reports on technical breakthroughs, accomplishments at the big laboratories and similar subjects. The various Transactions, of course, deal with formal treatment in depth of technical subjects. News articles should have an element of general interest or contribute to a general understanding of technical problems or fields of technical interest or could be assessments of important ongoing technical endeavors.

Advice on possible authors or offers of such articles are invited by the editor.

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