

Members' Newsletter Nr 3 - 2016

This newsletter aims at sharing information with the IEEE Sweden Section Members. The Newsletter is subject to continuous improvements. Hence we kindly ask for contributions, feedback and involvement from our readers. Please submit to Rune Persson rune.persson@computer.org or Sweden Section Chair Mats Edvinsson, mje@ieee.org



Editorial

This autumn has a number of IEEE activities and events in Sweden. We have summarized some selected events.

Please observe the nomination of candidates to new Sweden Section Board officers has started; your input is very welcome!

There are important recent activities in Region 8, as well as in the near future. We have reported from a few of them.

IEEE Sweden Section

A message from the Section Chair

Dear IEEE member!

The autumn is here. A lot of activities are ongoing – organized by the Sweden Section, by Chapters and by Affinity Groups. A few are summarized in this issue, e.g. an industry workshop, Signal Processing, Photonics, and PES.

We just had our annual Chair workshop 6 Oct, with almost all chapters and affinity groups participating via web or physically. Much focus was on work & changes done so far, what we have learned, and what & how to do better. See separate article.

IEEE Region 8 is and will be very relevant for Sweden. Sweden participated in the R8 Congress in Germany, and received an Award! At the R8 meeting in September, it became apparent the way R8 will work in the future is much inspired by the changes we done in the Sweden Section. Moreover, the next R8 meeting has been decided to be in Stockholm in March 2017, preparations ongoing. And the R8 Director 2017-2018 will be Margaretha Ericsson, Sweden.

Our efforts to increase industry relevance are ongoing and increasing. More efforts in webinars, workshops and broader cooperation with industry are planned. Your inputs are much appreciated.

In this context, discussions are continuously ongoing with the IEEE entities in the Nordic and Baltic areas. Our friends in the neighboring area have sometimes a sub-critical size in some technical areas, which e.g. led to the creation of the Nordic CPMT chapter. There are other areas where (informal) cooperation is contemplated. As a member, please feel free to bring inputs to this discussion

Mats Edvinsson, Chair IEEE Sweden Section

Chair Workshop Oct 6, 2016 – Chapters, Affinity Groups & Sweden Section

The annual Sweden Chair workshop brought representatives from almost all chapters (C, CPMT, E, ED, EMC, MAG, MTT/AP, P, RA,SIT, SP and VT/COM/IT), affinity groups (YP, WIE, SB CTH, SB KTH) and Region 8. In the context of “economies of scale”, we also celebrated the IEEE Day 2016.



Much focus was on work & changes done so far, what we have learned, and what & how to do better going forward. Key aspects are the world around us and how we bring value to our IEEE Sweden members. Some draft conclusions from the workshop;

The Sweden Section is moving in the right direction: Increased visibility and transparency, more structured approaches and forward planning, improved support to chapters and affinity groups, increase industry relations, increased activity and efforts related to the next generation (Sweden got the 2016 YP award) and active membership development. Still, there is more to be done.

A more informative and versatile new ieeese.se web platform will be launched, preparations ongoing. E.g. assigned representatives from chapters and affinity groups then access and updates own info online.

There is a lot to be inspired by and learn from each other, both within Sweden as well as from & to R8. Individual chapters identified a few areas for further work, e.g.: Closer cooperation with other chapters in relevant areas (increase vitality, matching profile differences etc); develop representation and cooperation with both industry and academia; drive benefits from activities with non-IEEE organizations; ways to develop a geographic reach etc.

Substantial potential for more joint efforts between chapters and the affinity groups, AG; YP, WiE & Student Branches. E.g. mutually build the next generation engineers; use AG's as sources for vitalization; build stronger and sustainable SB presence at key universities with active chapter support, etc.

Sweden Section will assist in facilitating the efforts above, including own external activities.

Ongoing efforts and changes in IEEE worldwide and Region 8 were discussed. In addition, R8 will share some lessons from Sweden to other Sections. (See also article on Region 8 meeting Sep 2016)

Mats Edvinsson, Chair IEEE Sweden Section

Industry web workshop organized by Sweden Section & ICES

On 31st of August, we organized a workshop on **EMC Requirements for Complex Systems**, jointly with the **Innovative Center for Embedded Systems (ICES)**, in Stockholm, at KTH Main Campus.

Complexity is inevitable result of system evolution yet a threat to this evolution in itself. When systems start to take increasingly critical decision as in case of autonomous applications, complexity is further increased and yet threatening the correctness of the decision taken by these applications. One result of complexity is unclear interrelations between multiple components in automated machines, vehicles and facilities. Interrelations can be of a direct logical character and in form of side effects; one of them has a name of EMC (Electromagnetic Compatibility). Imagine one component affects the other one in an unpredictable manner, leading to any unpredictable behavior! Yes, this is what will happen if EMC issues

are not properly addressed. That's why EMC tests are mandated for basically any system which has any electronics. But will those tests help with the complexity on the edge, for example, as in highly automated vehicles? In this workshop, we have gathered presentations by experts in the area of EMC, with the following panel discussion on the topic of complexity and EMC. **Speakers were from Saab, Volvo Cars and KTH.** The workshop was well attended with about 30 participants from **industry and academia**, interested in the EMC topic. Moreover, the workshop was possible to attend **online**, with few **participants from other cities and countries attending**.

EMC issues in infrastructures, passenger vehicle and energy systems were thoroughly discussed. In particular, intentional EMC has received a great attention, which, known since early days in military, is now an emerging topic for civil systems, both for industry and academia. Not least, this topic is critical for national security. Standards in EMC and verification against EMC requirements were elaborated. EMC for autonomous vehicles and, in general, for all autonomous systems is a very challenging topic and presently lacks not only industrial praxis but even basic research, e.g. it is a total mystery how, for example, intentional EMC can affect decision-making in autonomous machines.

Industry, in general, needs more engineers, both focusing on EMC but also those who understand EMC requirements and can deal with them during system design. Academia has a number (even limited) teachers who can give the EMC knowledge to the students and clearly a tight collaboration between academia and industry on this topic is demanded. The huge burst of EMC problems is quickly approaching with the exponential increase of systems' complexity, which makes both engineers and authorities increasingly concern. On a positive side, increased complexity together with EMC challenges will pose requirements on a lot more engineers, which will make the engineering profession even more attractive. This is a clear signal that we could send out from our workshop, and we hope that IEEE will continue to play a key role in this quest for engineers.

Viacheslav Izosimov, Sweden Section Board

Revitalizing the Signal Processing Chapter, SP

The IEEE Sweden SP chapter is revitalized during 2016 with new board members and a number of activities in the pipeline. During 2016 there have been two Distinguished Lecture seminars, with live web-broadcasts. If you are interested in watching the seminars, please contact Ass Prof Saikat Chatterjee, at sach@kth.se

- Spatial Modulation Techniques in Wireless Systems; May 2016, KTH
Speaker: K.V.S. Hari, Professor, Department of ECE, IISc - Indian Institute of Science, Bangalore
- Title: Convexity, Sparsity, Nullity and all that.....; June 2016, KTH
Speaker: Professor Hamid Krim, North Carolina State University, USA

For 2017, the SP chapter plans a number of activities:

A Data Analytics Workshop in May 2017. This will be research centric workshop with some industry participation.

A Swedish Signal and Information Processing workshop - Tutorials and poster presentation, planned to be co-located with Swe-CTW. The workshop might be further expanded, such as a Nordic Signal and Information Processing Workshop (NSIPW) or a Nordic-German Signal and Information Processing (NGSIPW).

Moreover, ongoing planning for Industry seminars at KTH, as well as short PhD courses at KTH, Uppsala University and Lund University. In addition, a Swedish SP Chapter meeting and dinner

Subhrakanti Dey, Chair SP Sweden Chapter

The Photonics Chapter – the youngest Chapter in Sweden

IEEE Photonics Chapter Sweden was **established in late 2013** by dr Patryk Urban, who stepped down from the IEEE Section Sweden Board to focus on raising the new unit. Since its foundation the Chapter has organized or co-sponsored several events. Until Q3/2016, several hundreds of participants joint over 10 events of various nature spanning from seminars, topical workshops and conferences, which were often related to global initiatives such as IEEE Women in Photonics, International Year of Light and the IEEE Distinguished Lecturers program.

Prior to the election of the first Board in early 2015, the first year of Chapter's existence was spent on attracting potential sponsors, building a proper network of contacts inside and outside IEEE and gaining on Chapter's visibility. All of that resulted in Board composed of senior representatives from various branches of the photonics field coming from academia and industry in Sweden. Noteworthy is the fact of very well established cooperation with Chapter's parent unit, the IEEE Section Sweden, and the IEEE Photonics Society HQ in US.

The Chapter has received funding from various sources such as financial support from dedicated programs within IEEE, event-specific donations from companies as well as in-kind sponsorships from universities, companies or other IEEE chapters active in Sweden or non-IEEE organizations oriented onto the field of photonics in Sweden.

While the Board of the Chapter is well aware of the importance of attracting experienced professionals active in the field of photonics, events oriented on students and school children are just as high on the Chapter's agenda. Thus, it became a tradition to run dedicated events, which provide the possibility for novices of different age to directly approach scientists, researchers, inventors and engineers. For the first time this year the Chapter is sponsoring the 2nd Prize for the Best Master Thesis Award to be handed during the Optics and Photonics in Sweden, early November 2016.

May 2014	18 th Conference on Optical Network Design and Modeling, KTH
Nov 2014	Seminar "Transformation Optics", Chalmers Univ.
Sep 2015	Workshop on "Frontiers and Challenges in Optical Communication", Chalmers
Oct 2015	Introduce a Girl to Photonics, ACREO
Oct 2015	Optics and Photonics in Sweden, KTH.
Nov 2015	IEEE Nordic Congress, IEEE Section Sweden
Dec 2015	Women in Photonics, ACREO
May 2016	Topical Workshop on "Vertical Cavity Lasers", Chalmers
June 2016	Photonics and Electronics for School Children, ACREO
Sep 2016	Topical Workshop on "Microstructured Optical Fibers", Ericsson AB
Nov 2016	Optics and Photonics in Sweden, Linkoping Univ.

The Sweden Photonics membership grows slowly but steadily with some 5% year-on-year.

Looking ahead, the Chapter plans for new exciting events in 2017 and beyond with the European Conference on Optical Communications (ECOC) next year being one of the focal points.

Patryk Urban, Chair P Sweden Chapter

PE/PEL Chapter members meeting and seminar 2016

At the 29th of September, **the IEEE PES Sweden Membership meeting with Distinguished Guest Speakers at KTH's main campus.**

Professor Lina Bertling Tjernberg, chair of the PES/PEL Sweden Chapter, gave an introduction about IEEE membership and examples of previous activities. Then presentations on "Old and new uncertainty in power systems, by Professor Math Bollen, Luleå University of Technology, Skellefteå Campus, and "Demonstration of Smart Grid and E-mobility projects", by Dr. Fredrik Carlsson, Vattenfall.

More info on <http://www.kth.se/ees/omskolan/seminarium/tidigare-seminarier/ieee-pes-sweden-memb>

An upcoming combined event on **7 Nov 2016 in Lund**, at LTH. At 17:00, a lecture by Carlos Martins, ESS: "Applications and topologies of power electronic systems for large particle accelerators - the example of ESS". Then followed by an IEEE Senior Elevation event at 18:00.

Lina Bertling Tjernberg, chair of the PES/PEL Sweden Chapter

IEEE Region 8

News from the IEEE Region 8 meeting, Sep 2016

In total 56 IEEE Sections from Europe, Middle East and Africa gathered together with IEEE officials in Portugal for the Region 8 meeting 23 – 25 Sep 2016. Below some key items;

Sweden Section hosts the next R8 meeting

Next R8 meeting will be 24-26 March 2017 in Stockholm. The Sweden Section was awarded for hosting the R8 Nomination Committee meeting in Stockholm, July 2016.

IEEE President Barry Schoop key-note speech:

"Region 8 is amazing: Keep up, the world is watching you!". E.g. SYP activities are exported across IEEE. He stressed industry engagement needs and that IEEE relevance to industry members must increase.

R8 officers for 2017

Director Margaretha Ericsson, Sweden; Past Director Costas Stasapoulus Cyprus; Treasurer Ralph Kennel, Germany; Secretary Jan Verwekken, Benelux; Vice Chair member activities - Antonio Luque, Spain; Vice Chair Student & Young Professionals Femia Arvanti, Austria; Vice Chair Technical Activities Christopher James, UK. The Director-Elect will be known in October once elections are finalized.

Strategic plans for R8 and Sections 2017-2018

Strategic areas for R8 sections are working with Industry, Students and Young Professional, and to ensure section vitality. Mats Edvinsson presented the way of work we have in Sweden – such as focus, strategic planning and implementation – which supports a vital section and good cooperation between Chapters, the Section and Affinity Groups. Marina Ruggieri, Director-Elect for TAB - Technical Activities Board – emphasised the need for close cooperation between technical societies and the geographical organisations, i.e. chapters and sections.

R8 introduces an "Innovation Fund", where innovative Chapters, Sections, SYP & WIE can apply.

A new IEEE R8 office opens 2017 in Vienna, similar to regional offices in Singapore, Japan and China. IEEE standards association moves in first. Vienna office will support local R8 needs, in process.

Bright future for Chapters? Among Students & Young Professionals and Women in Engineering

The IAS, PES, EMB and CS chapters are popular among new student branch chapters. Many females interested in technology related to health, medicine & biology, hence huge potential for talents

IEEE R8 Actions for Industry (AFI) is progressing

AFI has 2 elements: Industry internship for Students, and corresponding Mentors (engineers). R8 has 60 000 SYP members, and R8 urge SYP's to submit applications for internship.

More industry Mentors are needed; preferably Fellows & Senior IEEE Members in companies looking for young talents. Please contact Sweden Section Chair Mats Edvinsson, mje@ieee.org

IEEE R8 Africa – a newly formed area.

The area is headed by Gloria Chukwudebe, former Nigeria Section Chair, to support the development. Africa offers a big potential for IEEE with 54 countries.

Upcoming IEEE Region 8 conferences :

- **GCC 2017** –the Gulf Conference and Exhibition – 6-9 May 2017, Manama, Bahrain www.ieee-gcc.org; (new date). Please note the parallel **SYP GCC 2017** 6 – 7 May
- **EURCON 2017**, 6 – 8 July in Ohrid, Macedonia, 2017
- **HISTELCON 2017**, 7 – 8 Aug 2017, in Kobe Japan
- **AFRICON 2017**, 18 – 20 Sep, Cape Town, South Africa
- **ENERGYCON 2018** – Hosting country needed. Any Sweden Chapter volunteering?
- **EUROCON 2019** – Hosting country needed. Any Sweden Chapter volunteering?
- **ENERGYCON 2020** – Tunisia

Please feel free to contact us if you are interested in a particular topic, more information etc.

Mats Edvinsson

Chair IEEE Sweden Section

Margaretha Ericsson

IEEE R8 Director-Elect 2015-2016, Director 2017-18

IEEE R8 SYP Congress in Regensburg, Germany, Aug 17 – 21, 2016

The 10th edition of the R8 Student and Young Professionals Congress took place in Regensburg, Germany this August, which was hosted by OTH Regensburg University. It was organized in collaboration with Student Branches from Passau and OTH Regensburg.

By far, this is one of the biggest events that take place biannually in R8 (Europe and Middle East). This edition of congress witnessed more than 400 attendees from multiple sections scattered throughout R8. This number is one of the biggest records for this event so far. The Sweden section was represented by 2 representatives from Student Branches and Young Professionals.

This congress serves as a place for networking, knowledge sharing and training of young promising students and professionals in order to assist their needs and future plans of activities back in their representing sections. Here, representatives from MGA, Student Activities and R8 YP help their volunteers to get up to speed with the tools and initiatives that are available for them.

Additionally, there were a large number of different workshops available for the attendees, which



included areas of soft skills and been successful at your job like leadership, conflict management up to more technical workshops regarding new technologies and standards.

This year, the technical workshops were organized by big companies like Kaspersky, Akamai & Intel. These workshops included insights on the inner development of the companies' technologies in their businesses and what sort of challenges they faced.

Also there was a space to discuss and ask questions to the different candidates of IEEE's Annual election for 2016. We counted with the attendance of the candidates for R8 Director and IEEE President. All the candidates had the honor to present their candidacies and answers questions and inquiries from the attendees of the congress.

R8 Prize ceremony

With each edition, a special gala dinner takes place gathering all the attendees and officers at IEEE R8. During this time, prizes and recognitions are presented by R8 Directors and YP officers for Student Branches and Young Professionals around R8.

In this edition, of the gala dinner, Sweden was able to shine and feel proud of their YP volunteers as for this 2016; the YP AG in Sweden Section had the honor to receive the **2016 Region 8 Outstanding Young Professional Affinity Group** for their hard efforts and engaging activities during the last year.



Multicultural Event

On the eve of the closing ceremony, a multicultural evening is organized. In this event, representatives from different sections of IEEE Region 8 showcase different cultures in form of gifts, food and drinks which are common of their countries.

This gives the opportunity to the attendees to discover and get a taste of different cultures under the same roof, a unique experience showing the diversity of cultures lying under IEEE Region 8.

Nonetheless, Sweden got the opportunity to share a bit of their culture with the corresponding allocated area to present their goodies and snaps songs.

