

YEP/EUREL/SER seminar on nanotechnology and embedded electronics design

Göteborg 8-10 September 2011

Closing report

Robert Rehammar, Karin Södervall



Summary of the event

The seminar was distributed over three days with the programme seen in the appendix. There were 10 attendants, coming from Italy, Sweden, Poland, Germany and Austria. Thursday was reserved for arrival and social activities. The participants took a ride in the Göteborg version of the London eye. In the evening the participants and organizers had get-together at a local restaurant.

Friday was the main event day where talks from 5 presenting companies were given on the two subjects of the meeting. In the morning three talks were given on nanotechnology followed by a demonstration of the clean room facilities at the Micro- and nanotechnology department of Chalmers. In the afternoon there were three presentations on embedded electronic design by representatives from the industry.

On Saturday there was a guided tour in the Göteborg opera house where the participants were demonstrated the technology used in a modern theater. After the opera demonstration, a short wrap-up session was held and the event was formally closed. Several photos were taken during the seminar days, including the group picture seen on the front of this report. A few more photos are available in the appendix.

Summary of preparation work

Preparation work consisted primarily of

1. Contacting lecturer and guides
2. Reservation of accommodations and meals
3. Reserving the venue
4. Making programme information and communicating the programme
5. Arranging travel details for the participants

Of these points, point 4 turned out to be the absolutely most tricky one to perform. There is an extended discussion about this in the last section of this document, discussing future similar arrangements.

The companies that were contacted turned out to be very positive to giving talks. After discussions about content details, all companies involved, including the opera and the university, were all willing to find a suitable lecturer.

Reservation of accommodations and meals worked out well. It should however be noted for future arrangements that it is probably advantageous to have longer period between sign-up deadline and the actual arrangement to better be able to handle variations in the number of participants.

The whole venue was taking place at the technical university in Göteborg, Chalmers university of technology. This worked out well, but was not offered to us free of charge.

Adverts of the programme was made available on the SER homepage, via posts to the YEP and on selected channels available to the programme direction. For the whole arrangement there was a limit of 20 participants set, and in advance it was expected that this limit would be reached.

This limit was set by the maximum number of people the clean room tour could take. Since there were only 10 people attending, the limit was not reached and the programme committee believes that the main reason for this is a failure in communicating the event. This is further discussed in the final section of this document. In general it was very difficult to get feedback on whether the information had reached the potential participants in the different societies.

There were no problems associated with travel arrangements.

Economy

The whole arrangement was advertised as requiring an attendance fee of € 50. This fee included all expensed in connection to the arrangement except traveling costs to and from Göteborg. The expenses (in SEK, approx 10:1 to €) for the arrangement can be found in the table below:

1	Accommodation	7,300
2	Meals, expenses social activities etc.	5,892
3	Local transportation	1,170
4	Study visit	2,000
5	Rental venue and costs related to the venue	3,000

Total	19,362
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Evaluation comments

Only two evaluations have arrived. They are shown below, including questions:

What did you like the most with the seminar?

I liked the fact that they spoke to us as engineers and didn't waste time on talking about number of employees and last year's revenue etc.

Did the seminar fulfill your expectations?

Yes, it was far above my expectations.

What could have been differently?

It could have been even more seminars. When you're devoting a long weekend from Thursday to Saturday or Sunday, one might as well maximize the number of seminars.

How did you receive information about the seminar?

Information from my programme directors.

How do you think the approach with two relatively different subject worked?

Very good. In the end, for engineers all subjects are very interesting.

Do you have any suggestion on how to make more people participate in these kind of events in the future?

On a university, make the companies sponsor the event with free lunch sandwiches or similar.

Any other comments?

Great Job! I'm very glad that I attended.

What did you like the most with the seminar?

Organization, nanotechnology session, embedded electronic design session, social session

Did the seminar fulfil your expectations?

Yes, of course

What could have been differently?

more time for visiting city

How did you receive information about the seminar?

Mail from SEP Association of Polish Electrical Engineering

How do you think the approach with two relatively different subject worked?

Do you have any suggestion on how to make more people participate in these kind of events in the future?

More information on webpage

Any other comments?

Questions to work out in future arrangements

In this section we like to highlight two topics we believe are important for future similar arrangements to succeed.

Selecting a time

Selecting an appropriate time for an arrangement such as this is probably a key factor. The time chosen for this event was probably not optimal, being located too close to the summer vacation. This made information about the event not available to possible participants. It also made the timing a bit stressed after summer when the final details should be fixed. We believe a later date of the year would probably have been more suitable.

We believe also that it is of key importance to determine where in the week the arrangement is placed. This arrangement was placed in the weekend to allow participants to spend the rest of the

weekend in Göteborg for private activities. This option was used by some of the participants, whereas others expressed this as an inconvenience.

Advertising the event

Another key question to be considered is how an arrangement such as this should be advertised. There were comments about missing information on the SER web page. This is probably partly explained by the fact that the SER web host had some problems close to the arrangement. Probably we should also have paid better attention to this and put up more information on the web.

Appendix

Selected photos



Photographer: Robert Rehammar



Photographer: Jacek Król



Photographer: Jacek Król



Photographer: Karl Erik Olofsson



Photographer: Karl Erik Olofsson



Photographer: Stefan Schorer



Photographer: Stefan Schorer



Photographer: Stefan Schorer

Programme as handled out to the participants



EUREL seminar for young engineers Nano technology and embedded electronic design Gothenburg, 8-10 September 2011

Welcome!

We wish you very welcome to Gothenburg and this exciting seminar on modern trends within electrical engineering.

Development in electronics and electrical engineering is now moving very fast. Especially the merger between traditional electronics/electro-technology and software and computer sciences. Many Swedish firms are now entering the new field between electronics and data/IT, like Volvo, Saab and others. There will be a lot of new job opportunities for engineers especially with university degrees in these fields.

SER, the Swedish Society of Electrical and Computer Engineers, and **EUREL** present this seminar on development within two interesting areas

- **Embedded electronic design**
- **Nano technology applications**

The seminar is organised especially for students at the technical universities and young professional engineers. It is taking place at Chalmers, Gothenburg on September 8 – 10, 2011.

The seminar consists of two sessions

- The first session includes a visit to state-of the-art academic clean-room environment at Chalmers University of Technology accompanied by presentation on nanotechnology by Swedish development organisations and firms.
- The second session will cover embedded system design, with presentations from well known Swedish companies Volvo Cars, Saab Electronic Defence Systems and Altran Technology.

Company exhibition

There will be a special poster exhibition presenting the participating companies and organizations in the afternoon Friday 9 September.

Social activities

As a complement to the technical sessions we have included social activities that we hope will also give you new knowledge, insight and new contacts, including a technical tour of the renowned Gothenburg Opera House and a tour of the city with emphasis on the development of the city.

Programme details

Overleaf you will find an overview programme for your visit in Gothenburg as well as a detailed seminar programme.

The organization committee wishes you a pleasant stay, much learning experience and a lots of new contacts as you participate in this seminar!

*Robert Rehammar
Project Manager
SER, EUREL Young Engineers Panel*

*Karin Södervall
Team member, SER*

*Karl Erik Olofsson
SER, Chairman of the Board*



***EUREL seminar for young engineers
Nano technology and embedded electronic design
Gothenburg, 8-10 September 2011***

Programme overview

Below is an overview of the seminar programme 8 – 10 September, including practicalities, social activities and the seminar sessions.

Thursday 8 September

12.00 – 15.00	Arrival and accommodation – check in
16.00 – 17.30	Presentation and introduction, with coffee
17.30 – 19.00	Gothenburg guided tour and "The Wheel"
19.30 –	Social get together and dinner

Friday 9 September

-- 08.00	Breakfast at Youth Hostel
08.00 – 08.30	Transport to Chalmers University of Technology ¹⁾
08.30 – 13.00	<i>Seminar session Nanotechnology – see seminar programme²⁾</i>
13.00 – 14.00	Lunch and Photo
14.00 – 17.30	<i>Seminar session Embedded electronic design – see seminar programme²⁾</i>
17.30 –	After Work!

Saturday 10 September

-- 09.15	Breakfast at Youth Hostel
09.15 – 09.45	Transport to Gothenburg Opera House ¹⁾
09.45 – 12.00	Sound & Vision at the Opera House – a technical guided tour
12.00 – 12.30	Concluding session and wrap up
12.30 –	Check out Departure (individual)

Remarks:

- 1) Local transportation is by means of tram and buses. All participants have a free travel pass valid for 72 hours.
- 2) The detailed programme for the seminar sessions is shown on the following page.



EUREL seminar for young engineers
Nano technology and embedded electronic design
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Seminar Programme

Friday 9 September

Venue

Chalmers University of Technology

Nano technology session

Department of Physics

MC2

Time	Subject	Speaker	Company/Organization
08.30 – 09.30	From university to market, from idea to product	Alexandra Nafari	Imego
09.30 – 10.30	Probing the nano world	Johan Angenete	Nanofactory Instruments
10.30 – 11.00	Coffee break	-	-
11.00 – 12.00	Clean room visit	Ulf Södervall	Nanofabrication Laboratory/MC2
12.00 – 13.00	Will nanoscale enable sustainable development?	Per Lundgren	MC2
13.00 – 14.00	Lunch and Photo	-	Linsen

Embedded electronic design session ³⁾

Department of Electrical Engineering

Lecture hall ED

Time	Subject	Speaker	Company/Organization
14.00 – 15.00	Embedded high-performance signal and data processing in advanced radar systems	Anders Åhlander	SAAB Electronic Defence Systems
15.00 – 16.00	Development of vehicle electronics from a systems point of view	Hans Alming	Volvo Cars
16.00 – 16.30	Coffee break	-	-
16.30 – 17.30	Key Steps in Product Development	Mattias Almljung	Altran Technology

Company exhibition in connection with the Embedded electronic design session ³⁾

Department of Electrical Engineering

Entrance hall outside Linsen

Time	Companies/Organizations
12.00 – 14.00	Meet the companies! In connection with the seminar the presenting companies and organizations will be available to chat with in the foyer outside of Linsen, including: Imego, Nanofactory Instruments, SAAB Electronic Defence Systems, Volvo Cars, Altran Technology, SER (Society of Swedish Electric and Computer Engineers).

Remark:

3) This seminar session and the company poster presentations are also open to other students at Chalmers.



Brief presentation of participating organizations and companies

Nanofabrication Laboratory/MC2 is a world-class university cleanroom for research into and fabrication of micro and nano technology. The laboratory is run by the department of Microtechnology and Nanoscience at Chalmers, but is an open user facility for external as well as internal academic and industrial interests. www.chalmers.se/mc2/EN.

Imego is a multi-disciplinary organization with broad expertise for microsensors, nanosensor and microsystem technology. www.imego.com.

Nanofactory instruments develops, produces and markets in situ probing specimen holders for transmission electron microscopes. The company's products are used by researchers in the fields of materials science and nanotechnology to carry out front line research aiming at generating a deeper understanding of the relationship between materials' structure and properties. www.nanofactory.com.

SAAB Defence Systems develops and manufactures advanced electronic equipment and radar systems for defence and aerospace use. In modern radar systems the processing demands may stretch to several trillions of operations per second. In addition, there are tight size and power constraints. To meet these, special purpose, highly parallel computer systems are needed. The systems should efficiently deliver high performance, as well as being flexible and programmable. The presentation illuminates these processing challenges and solutions. www.saabgroup.com.

Volvo Cars is a major car manufacturing company and will present their development of electronic systems for vehicles. The use of embedded electronics in vehicle applications emerged from stand-alone systems (emission control, engine management) in the 70's and 80's has evolved in the late 90's and 00 into distributed systems of 20 - 100's of microprocessors connected via various communication networks on-board, controlling virtually all functions of the vehicle. The presentation will touch upon some of the challenges today and in the near future, the emerging standards (e.g. Autosar, ISO26262) and an outlook of future evolution of the area. www.volvocars.com.

Altran Technology has as its primary services electronics design and embedded solutions, system design, digital, analogue and RF design, real time OS, embedded Linux and Android, programming in C/C++, device drivers and low level program development. The seminar presentation is based on an example product, a pressure sensor, developed in a project by Altran. As we follow the project and the steps developing towards the product, we discuss different technical design decisions (key steps). Why do you select a certain component (hard or soft) and what may the implications be? www.altran.com.

Company exhibition on Friday 9 September, 12.00 – 14.00

The participating companies will present company information in a special poster exhibition in the entrance hall outside students café Linsen, close to the lecture hall ED in the afternoon Friday 9 September.

Organized by SER in cooperation with



www.imego.com



www.nanofactory.com



www.chalmers.se/mc2/EN



www.saabgroup.com



www.volvocars.com



www.altran.com

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