According to Moore’s Law, the number of transistors that can be packed onto a chip doubles every 18 months. However, in the next 10 to 20 years some believe silicon will reach its physical limits and will no longer be able to include more transistors. Thinking about after-CMOS becomes challenging at the less-than-10nm scale, and new ideas and prospects for solutions should be provided by research. Several completely new approaches to information-processing, data-storage technologies and architectures are emerging to address the timeframe beyond the current roadmap: one attractive alternative is to foresee the hybridization of advanced silicon CMOS with the most promising nanotechnologies in order to achieve performance levels unreachable by a single technology platform.

From this viewpoint, carbon nanotubes can be seen not as a replacement for silicon technology but as an add-on to extend the figures of merit and develop new applications as nano-electro-mechanical (NEM) devices, essentially due to the unique electrical and mechanical properties of the nanotubes. In fact, carbon nanotubes have the potential to be incredible building blocks to create new nanoscale devices, provided that they can be assembled into organized architectures and networks without losing their strength or electrical properties.

The objective of this workshop is to gather researchers and engineers working in the field of carbon nanotubes and NEMS from fundamental science to market surveys, and to provide them with a forum for discussion for exchanging their points of view and experience and sharing their research results.

Funded by the Nano-RF project (European FP6 STReP programme)
Programme

8:30 - Registration

9:00 - Welcome and presentation

9:10 - P. Salet, A. Ionescu, EPFL, Switzerland
Overview and highlights of the Nano-RF project

9:40 - E. Campbell, Göteborg University, Sweden
Towards CMOS compatible growth of carbon nanotubes

10:10 - J. Kinaret, Chalmers University of Technology, Sweden
Modeling carbon-nanotube-based nanoelectromechanics

10:40 - Coffee break

11:00 - K. Ekinci, Boston University, USA
Nanomechanical sensing and metrology : Recent progress

11:30 - M. Roukes, Caltech, USA
Advances in NEMS, both from the Top-Down and Bottom-Up

12:00 - Marcelo Goffman, Molecular Electronics Laboratory, Service de Physique de l'Etat Condensé, CEA-Saclay, France
Design and characterization of carbon nanotube based NEMS

12:30 - Buffet lunch

13:30 - Ch. Hierold, ETH Zürich, Switzerland
CNT nano electromechanical transducers

14:00 - H. van der Zant, Delft University of Technology, The Netherlands
High-frequency single-wall carbon nanotube resonators

14:30 - Coffee break

14:50 - C. Nguyen, UC Berkeley, USA
Integrated Micro/Nano-Mechanical Circuits

15:20 - S. de Haan, Wicht Technology Consulting, Germany
Carbon Nanotubes Roadmaps – Opportunities in Electronics

15:50 - Conclusion

More technical and practical information as well as registration:
online at http://www.nano-rf.org