



Nano and Giga Challenges
in Microelectronics
Research and Development
Opportunities
Symposium and Summer School

Cracow, Poland
September 13-17, 2004

<http://www.atomicscaledesign.net/ngcm2004>

Conference Background

Microelectronics technologies have reached a new stage in their development: the ultimate miniaturization of electronic devices is approaching atomic dimensions, the interconnect bottleneck is posing to limit circuit speeds, new materials are being introduced into microelectronic manufacture at an unprecedented rate, and alternative technologies to mainstream CMOS are being considered. As a marriage of today's micro-, tomorrow's nano- and future molecular electronics the series of conferences on Nano and Giga Challenges in Microelectronics (NGCM) has been launched. Following the first successful Summer School and Symposium in Moscow (NGCM2002) the second biennial meeting will be held in Cracow, Poland hosted by Jagiellonian University and Fujitsu (FQS) Poland.

Meeting Format

The scientific program consist of Symposium (first 3 days) and a Summer School (last 2 days). The Symposium includes plenary sessions in the morning, which are followed by oral section presentations and poster sessions in the afternoon. Evening sessions will focus on technology trends and collaborative discussions. The Summer School program consists of tutorial (plenary) lectures followed by panel discussions involving both participants and speakers.

Technical scope

Abstracts are invited in the following areas:

- atomic scale design: theory and experiment
- fabrication of nanodevices
- future bio- and molecular electronics
- magnetic materials and spintronics
- integrated and subwave optoelectronics
- new materials for future FETs
- non-silicon materials and devices
- quantum effects in devices
- software tools for nanoelectronics
- ultrahigh-frequency electronics

Venue: Jagiellonian University

Symposium: *New Campus Gronostajowa St.*
School: *Old campus (Chemistry Insitute)*

Conference Sponsors

Jagiellonian University; FQS Poland (Fujitsu Group); Elsevier Science; Hysitron, Materials Research Society; European Office of Airspace Research and Development, United States Air Force; ST Microelectronics; Ohio Supercomputer Center; University of Notre Dame, IN.

Sponsors and exhibitors are welcome. Please, contact us by e-mail for details at organizers@asdn.net

**Nano and Giga Challenges in Microelectronics
Research and Development Opportunities
Symposium and Summer School
Cracow, Poland, September 13-17, 2004**

International Advisory Board

Maria Nowakowska (University Patronage), Jagiellonian University, Cracow, Poland; **Andrzej Burian**, University of Silesia, Katowice, Poland; **Bruce Garrett**, PNNL, Richland, WA, USA; **Takeo Hattori**, Musashi Inst Techn, Tokyo, Japan; **Howard Huff**, SEMATECH, Austin, TX, USA; **Sergey Kozlov** Motorola, Moscow, Russia; **Stanisław Kucharski**, Silesian Univ, Katowice, Poland; **Konstantin Likharev**, Stony Brook U, NY, NY, USA; **Gerald Lucovsky**, NCSU, Raleigh, NC, USA; **Pawitter Mangat**, Motorola, Phoenix, USA; **Alexander Orlikovsky**, Inst Phys & Techn, Moscow, Russia; **Eiji Osawa**, NanoCarbon Research Institute, Chosei-mura, Japan; **Victor Prinz**, Inst Semicond Phys, Novosibirsk, Russia; **Jerzy Rudziński**, FQS Poland (Fujitsu Group), Cracow, Poland; **Claudine Simson**, Motorola, Austin, TX, USA; **Evgeni Velikhov**, Russian Research Centre "Kurchatov Institute", Moscow, Russia; **Steve Watson**, Elsevier, Amsterdam, Holland; **Thomas Wyrobek**, Hysitron, Minneapolis, MN, USA.

Program Committee

Anatoli Korkin (Chairman), NGS, Gilbert, AZ, USA; **Agata Dudek** (Secretary), Jagiellonian University, Cracow, Poland; **Gennadi Bersuker**, SEMATECH, Austin, TX, USA; **Andrzej Burian**, University of Silesia, Katowice, Poland; **Bruno Chaudret**, CNRS, Toulouse, France; **Jarosław Dąbrowski**, IHP, Frankfurt/Oder, Germany; **Jim Greer**, NMRC, Cork, Ireland; **Evgeni Gusev**, IBM, Yorktown Heights, NY, USA; **Serge Luryi**, Stony Brook Univ, New York, USA; **Heather Maynard**, UCLA, Los Angeles, USA; **Nikolay Perov**, Moscow State University, Moscow, Russia; **Boris Potapkin**, Kurchatov Inst, Moscow, Russia; **Otto Sankey**, Arizona State University, Tempe, AZ, USA; **Michael Shur**, Rensselaer Polytechnic Institute, Troy, NY, USA; **Robert Suris**, Ioffe Inst, St Petersburg, Russia; **Marek Szymoński**, Jagiellonian University, Cracow, Poland; **Alex Volinsky**, Univ South Florida, Tampa, FL, USA; **Rainer Waser**, Center of Nanoelectronic Systems for Information Technology, Juelich, Germany.

Organizing Committee

Jan Labanowski, (Chairman), University of Notre Dame, IN, USA; **Katarzyna Graczyk** (Manager), FQS Poland, Cracow, Poland; **Andrei Touzik** (Technical Editor), IFW, Dresden, Germany; **Aleksandr Yasnogorodsky** (Webmaster), ASU, Tempe, AZ, USA; **Adam Czermak**, Institute of Nuclear Physics, Cracow, Poland; **Katarzyna Graczyk**, FQS Poland (Fujitsu Group), Cracow, Poland; **Olga Goremichina**, ESC, Chisinau, Moldova; **Inna Nazarova**, Motorola, Moscow, Russia; **Jadwiga Rudzińska**, Makolab, Cracow, Poland; **Matt Stoker**, Motorola, Phoenix, USA; **Carlos Taylor**, University of Florida, Gainesville, FL, USA.

Speakers

Alexander Alexandrov, Loughborough University, Leicestershire, UK; **Asen Assenov**, University of Glasgow, Glasgow, UK; **Katherina Babich**, IBM T.J. Watson Res. Ctr., Yorktown Hgts, NJ, USA; **Rodney Bartlett**, University of Florida, Gainesville, FL, USA; **Gennadi Bersuker**, SEMATECH Int., Austin, TX, USA; **Andrzej Burian**, University of Silesia, Katowice, Poland; **Franko Cacialli**, University College London, London, UK; **Gianfranco Cerofolini**, STMicroelectronics, Catania, Italy; **Yong Chen**, UCLA, Los Angeles, CA, USA; **Sorin Cristoloveanu**, ENSERG, Grenoble, France; **Tomasz Dietl**, Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; **Jan Fompeyrine**, IBM Research, Zürich, Switzerland; **Sergey Gaponenko**, Institute of Molecular and Atomic Physics Minsk, Belarus; **Eric Garfunkel**, Rutgers University, Newark, NJ, USA; **David Gilmer**, Motorola, Austin, TX, USA; **Rachel Goldman**, University of Michigan, Ann Arbor, MI, USA; **Torgny Gustafsson**, Rutgers University, Newark, NJ, USA; **Tamotsu Hashizume**, Hokkaido University, Sapporo, Japan; **Henk van Houten**, Philips, Aachen, Germany; **Kinam Kim**, Samsung Electronics, Yongin, Korea; **Konstantin Likharev**, Stony Brook University, Stony Brook, NY, USA; **Gerald Lucovsky**, North Carolina State University, Raleigh, NC, USA; **Anand Murthy**, Intel, Hillsboro, OR, USA; **Eiji Osawa**, NanoCarbon Research Institute, Chosei-mura, Japan; **Efim Portnoi**, Ioffe Institute, St Petersburg, Russia; **Nicholas Rambidi**, Moscow State University, Moscow, Russia; **Fred Roozeboom**, Philips Research Labs, Eindhoven, Netherlands; **Federico Rosei**, Université du Québec, INRS, Varennes, Canada; **Toshiharu Saiki**, Keio University, Yokohama, Japan; **Paul Seidler**, IBM, Zürich, Switzerland; **Michael Shur**, Rensselaer Polytechnic Institute, Troy, NY, USA; **Boris Spivak**, University of Washington, Seattle, WA, USA; **Marek Szymoński**, Jagiellonian University Cracow, Poland; **Anna Topol**, IBM T.J. Watson Rec. Ctr, Yorktown Hgts, NY, USA; **Alexey Toropov**, Ioffe Institute, St Petersburg, Russia; **Bruce White**, Motorola, Austin, TX, USA; **Satoshi Yamasaki**, Diamond Research Center, AIST, Tsukuba-City, Japan; **Alexey Zhukov**, Ioffe Institute, St Petersburg, Russia; **Elżbieta Zipper**, University of Silesia, Katowice, Poland.

Accommodation

A variety of hotel and lodging options will be suggested shortly by organizers. Social programs will be available for participants and accompanying persons. Please check the meeting Web site for more details and frequently updated information.

Registration and Abstract Submission

Online registration and abstract submission:
<http://www.AtomicScaleDesign.net/ngcm2004>
(deadline for abstract submission: **May 1st, 2004**)

Conference fee

Send checks or money orders made to: *Nano and Giga Symposium* and payable in US Dollars to:

Jan K. Labanowski
Science Computing Facility
225 Nieuwland Science Hall
University of Notre Dame
Notre Dame, IN 46556-5670, USA.

At our conference Web site: <http://asdn.net/ngcm2004> you can also pay the registration fee with a Credit Card (MC/V/AE/D) or obtain details for wire/bank transfers.

Early Registration Fee -- By March 15:
Regular participants: 200 US Dollars;
Full time students: 100 US Dollars
Accompanying persons: 50 US Dollars

Regular Registration Fee: March 16 – June 15:
Regular participants: 300 US Dollars;
Full time students: 150 US Dollars
Accompanying persons: 75 US Dollars

Late Registration Fee: after June 15:
Regular participants: 400 US Dollars;
Full time students: 200 US Dollars
Accompanying persons: 100 US Dollars

Additional Information

Check our frequently updated Web site:
<http://www.AtomicScaleDesign.net/ngcm2004>
for information on visa, travel, and nearby attractions
or contact us by e-mail at organizers@asdn.net