N A N O S T R U C T U R E S:
PHYSICS AND TECHNOLOGY

16th International Symposium

Vladivostok, Russia, July 14 – 18, 2008

Co-Chairs
Zh. Alferov
L. Esaki

P R O G R A M M E

Institute of Automation and Control Processes FEB RAS

Vladivostok, 2008

The International Symposium “Nanostructures: Physics and Technology” is held annually since 1993. The first Symposium was initiated by Prof. Zh. Alferov and Prof. L. Esaki who are its permanent co-chairs.
More detailed information on the Symposium is presented on the World Wide Web
http://ntc.dvo.ru/nano2008/1st.html

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Organizers

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Ioffe Physico-Technical Institute of RAS
St Petersburg Physics and Technology Centre for Research and Education of RAS

in association with

the Institutions of the Russian Academy of Sciences
Division of Physical Sciences
St Petersburg Scientific Center

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Location and Date

Symposium is held in Vladivostok, July 14 –18, 2008

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A. Kovsh *(Russia)*
A. Yoshikawa *(Japan)*

General Information

Registration Fee

The fee has been established as follows:

	before June 16	after June 16
Regular Participant	450 Euro	500 Euro
Student*	250 Euro	300 Euro
Accompanying person	120 Euro	150 Euro

** Students should present a letter from their supervisor confirming their student status.*

The registration fee covers meeting at the airport and transportation to and from the Symposium site, welcome reception, admission to all technical sessions and coffee refreshments, excursions envisaged in the Symposium Programme and also a set of Symposium materials including a copy of the Proceedings and a CD.

Registration fee of an accompanying person includes meeting and transportation, welcome reception, and excursions envisaged in the Symposium Programme.

The registration fee does not cover accommodation and meals.

Location and Date

The Symposium is held in Vladivostok, July 13 – 19, 2008.
Events of Symposium days (13-18) will take place at the Assembly Hall in the Building of Administration of Primorsky Region located in the downtown of Vladivostok.

Language

The official language of the Symposium is English. No simultaneous translation services will be provided.

Accommodation

Non-Vladivostok participants will be accommodated in five hotels: *Hyundai* Hotel (Semenovskaya, 29), *Vladivostok* Hotel (Naberezhnaya, 10), *Prymorie* Hotel (Pos'etskaya Str., 20), *Gavan* Hotel (Krygina, 3), *Guest house* of Marine State University (Verkneportovaya Str., 50) in Vladivostok during July 13 – 19.

Transportation

The Organizing Committee will arrange the following free-charge services for participants:

- Airport transfers upon arrival and departure.
- Transfer of participants to the places of Excursions by buses

Social Programme

Welcome party

Participants and accompanying persons are cordially invited to the Welcome Party in the Café of the Building of Administration of Primorsky Region on Sunday evening, July 13, at 18:00.

Symposium Dinner

The Symposium Dinner will be held on Friday, July 18, at 19:30 at the Hall of Naval Officers Club (Svetlanskaya Str., 48). The price of 50 Euro for the Symposium Dinner is to be paid by Wednesday afternoon, July 16 at the registration desk.

Excursions

Two free-of-charge excursions will be arranged for participants and accompanying persons.

Excursion 1: "Night Vladivostok"

Monday, July 14, at 21:30.

Excursion 2: "Islands and beaches of Amur bay"

Thursday, July, 17, at 9:00

Scientific Programme

Oral Sessions

Monday	July 14	9:00 – 20:00
Tuesday	July 15	9:00 – 18:20
Wednesday	July 16	9:00 – 17:10
Friday	July 17	9:00 – 18:00

The time allotted for an oral presentation is 40, 30 and 20 minutes for Plenary, invited and regular talks, respectively, including 5 minutes for discussion. Overhead and PC projector will be available. Speaker who prefers to make their presentation in Power Point or Abobe Acrobat should hand in their CD-ROMs or flesh disks to a representative of the Organizing Committee before the beginning of corresponding oral Session in order to transfer files to the host computer (due to technical reasons presentations can't be run from participant's own notebooks).

Poster Sessions

Monday	July 14	20:00 – 21:20
Tuesday	July 15	18:20 – 19:40
Wednesday	July 16	17:30 – 19:00

The size of a poster board is 100x100 cm. Each board will be marked with a number of a corresponding paper. The author is supposed to be at the board during the relevant session. The papers will be sticked early in the morning of the presentation day and removed after closing of the session.

Award

The 10th AIXTRON Young Scientist Award will be granted at the Award Ceremony on Friday afternoon, July 18, 2008. The award comprises a diploma and money prize (since 2004 money prize sponsored by *AIXTRON AG* (Germany) accounts for 1000$. The awardees of the recent years are:

1999 **A. Kovsh** (Russia)

2000 **T. Gruber** (Germany)

2001 **I. Shorubalko** (Sweden)

2002 **S. Kennedy** (Canada)

2003 **S. Tarasenko** (Russia)

2004 **I. Dmitriev** (Russia)

2005 **M. Kuntz** (Technische Universität Berlin, Germany)

2006 **D. Sizov** (Ioffe Institute, St Petersburg, Russia)

2007 **S. Sassine** (GHMFL, CNRS, France)

Timetable

Sunday, July 13

09:00 – 15:00 Airport arrival
15:00 – 18:00 Registration (Building of Administration of Primorsky Region, Conference Hall)
18:00 – 20:00 Welcome Party

Monday, July, 14 (Building of Administration of Primorsky Region, Conference Hall)

08:00 – 09:00 Registration
09:00 – 09:30 Opening Remarks (S. Dar`kin, Zh. Alferov)
09:30 – 10:50 Opening Plenary Session
10:50 – 11:20 Coffee Break
11:20 – 12:30 Infrared and Microwave Phenomena in Nanostructures
12:30 - 12:40 Break
12:40 – 14:00 Lasers and Optoelectronic Devices – 1
14:00 – 15:10 Lunch
15:10 – 16:20 Nanostructure Technology – 1
16:20 – 16:30 Break
16:30 – 17:50 Nanostructures and Life Science
17:50 – 18:10 Coffee Break
18:10 – 19:10 Metal Nanostructures
19:10 – 19:20 Break
19:20 – 20:00 Tunneling Phenomena
20:00 – 21:20 Poster Session + Coffee Break
21:30 – 23:30 Excursion 1 (Night Vladivostok)

Tuesday, July, 15 (Building of Administration of Primorsky Region, Conference Hall)

09:00 – 10:20 Spin Related Phenomena in Nanostructures – 1
10:20 – 10:30 Break
10:30 – 11:50 Nanostructure Characterization
11:50 – 12:10 Coffee Break
12:10 – 13:10 Nanostructure devices

13:10 – 14:40 Lunch
14:40 – 15:50 Lasers and Optoelectronic Devices – 2
15:50 – 16:00 Break
16:00 – 17:00 Nitride Nanostructures
17:00 – 17:20 Coffee Break
17:20 – 18:20 Nanostructure Technology – 2
18:20 - 19:40 Poster Session + Coffee Break

Wednesday, July, 16 (Building of Administration of Primorsky Region, Conference Hall)

09:00 – 10:50 Nanostructure Technology – Surface Controlled Nanostructure Formation
10:50 – 11:10 Coffee Break
11:10 – 12:20 Spin Related Phenomena in Nanostructures – 2
12:20 – 12:30 Break
12:30 – 14:00 Nanostructure Characterization – silicides
14:10 – 15:20 Lunch
15:20 – 17:10 Quantum Wells and Quantum Dots
17:10 – 17:30 Coffee Break
17:30 – 19:00 Poster Session

Thursday, July, 17

09:00 – 18:00 Boat Tour “Islands and beaches of Amursky Bay”

Friday, July, 18 (Building of Administration of Primorsky Region, Conference Hall)

09:00 – 10:40 Transport in Nanostructures
10:40 – 11:00 Coffee Break
11:00 – 12:10 Lasers and Optoelectronic Devices – 3
12:10 – 12:20 Break
12:20 – 14:20 Technical Session
14:20 – 15:30 Lunch
15:30 – 17:30 Closing Plenary Session

17:30 – 17:50 Coffee Break
17:50 – 18:10 Aixtron Young Scientist Award Ceremony
18:10 – 18:30 Clothing Remarks
19:00 – 22:00 Symposium Dinner

Saturday, July, 19

9:00 – 14:00 Departure

Monday, July, 14

Opening Plenary Session 09:30 - 10:50

Chairman: *Zh. Alferov*

OPS.01pl ***S. Tarucha***
Electron manipulation of electron and nuclear spins in quantum dots

OPS.02pl ***V.I. Sergienko*** and V.A. Avramenko
Nanostructured Matrix Sorption Materials – Promising Media for Low-Energy Nanotechnology and Ecology

Infrared and Microwave Phenomena in Nanostructures 11:20 – 12:30

Chairman: *Yu. Gulyaev*

IRMP.01i ***V. Ryzhii,*** M. Ryzhii, N. Ryabova, V. Mitin and T. Otsuji
Far infrared and terahertz devices based on graphene heterostructures

IRMP.02o ***Y.V. Kislinskii ,*** I.V. Borisenko, K.Y. Constantinian, P.V. Komissinskiy, G.A. Ovsyannikov and A.V.Shadrin
Millimeter wave dynamics of Josephson junctions with antiferromagnetic layer

IRMP.03o ***V.V. Popov,*** G.M. Tsymbalov and M.S. Shur
Amplification of terahertz radiation due to plasmonic instability in the field-effect transistor array

Lasers and Optoelectronic Devices – 1 12:40 – 14:00

Chairman: *Xiaomin Ren*

LOED.01o ***S.V. Ivanov,*** E.V. Lutsenko, S.V. Sorokin, I.V. Sedova, S.V. Gronin, A.G. Voinilovich, N.P. Tarasuk, G.P. Yablonskii, and P.S. Kop'ev
Violet-green injection laser converter based on II-VI quantum dot nanostructures

LOED.02o ***S.V.Alyshev,*** A.O. Zabezhaylov, R.A. Mironov, V.I. Kozlovsky and E.M. Dianov
3 watt scanning blue VCSEL with electron-beam pumping based on MBE grown ZnCdSe/ZnMgSSe structure

LOED.03o ***S. V. Sorokin,*** I. V. Sedova, S. V. Gronin, M. M. Zverev, N. A. Gamov, D. V. Peregoudov, V. B. Studionov and S. V. Ivanov
Effective electron beam pumped green semiconductor lasers based on heterostructure with multiple CdSe/ZnSe QD active layers

LOED.04o ***A.O. Zabezhaylov,*** S.V. Alishev, R.A. Mironov, S.A.Vasiliev, M.V.Grekov and E.M. Dianov
Optical properties of MBE grown Cr2+:ZnSe layers and Cr2+:ZnSe/ZnMgSSe waveguide structures for mid-IR lasers

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Nanostructure Technology –1 15:10 – 16:20

Chairman: *V. Dubrovskii*

NSTE.01i ***J. Johansson***
Synthesis, properties and applications of III-V nanowires

NSTE.02o ***G.E. Cirlin,*** Yu.B. Samsonenko, V.A. Egorov, I.P. Soshnikov, V.G. Dubrovskii, N.V. Sibirev, V.P. Ulin, V.M. Ustinov and F. Glas
Critical diameter of A_3B_5 nanowires grown on lattice

NSTE.03o V. G. Dubrovskii***, N. V. Sibirev,*** I. P. Soshnikov, G. E. Cirlin, J.-C. Harmand, G. Patriarche and F. Glas
Formation of hexagonal crystal structure in nanowires of cubic semiconductor materials

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Nanostructures and Life Science 16:30 – 17:50

Chairman: *A. Aseev*

NSLS.01i ***Yu.N. Kulchin***
Self-assembled Biosilification Processes in Animate Nature as the Base of Prospective Nanostructures

NSLS.02i ***Werner E.G. Müller,*** Xiaohong Wang, Ute Schloßmacher, Alexandra Boreiko and Heinz C. Schröder
Fractal-related assembly of the axial filament in the demosponge Suberites domuncula: contribution to the pattern formation of bio-silica

NSLS.03o S.S. Voznesenskii***, A.N. Galkina***, Yu.N. Kulchin
The features of nanostructured biosilica

Metal Nanostructures 18:10 – 19:10

Chairman: *Z. Krasilnik*

MNS.01o ***W.-H. Li,*** C.-W. Wang, C.-Y. Li, C.K. Hsu and C.-M. Wu

Coexistence of superconductivity and ferromagnetism in Sn nanoparticles

MNS.02o ***V.L. Gurtovoi,*** M. Exarchos, R. Shaikhaidarov, V.N. Antonov, A.V. Nikulov and V.A. Tulin
Magnetic field oscillation phenomena in multiple asymmetric superconducting rings of 1 μm diameter

MNS.03o ***T.A. Komissarova,*** T.V. Shubina, V.N. Jmerik, M.A. Timofeeva, N.A. Pikhtin, L.I.Ryabova, D.R. Khokhlov, P.S. Kop'ev and S.V. Ivanov
Photovoltaic effect in InN films with In clusters

Tunneling Phenomena 19:20 – 20:00

Chairman: *P. Kop'ev*

TP.01o ***Yu.I. Latyshev,*** A.P. Orlov, V.A. Volkov, A.V. Irzhak, D. Vignolles, J. Marcus and T. Fournier
Interlayer tunneling spectroscopy of Landau levels in graphite

TP.02o ***I.N. Kotel'nikov*** and M.N. Feiginov
Tunnel Schottky structures with 2D channels and negative differential conductance

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Poster Session – 1 20:00 – 21:20

Tuesday, July, 15

Spin Related Phenomena in Nanostructures – 1 09:00 – 10:20

Chairman: *M.-W. Wu*

SRPN.01o ***A.V. Larionov*** and L.E. Golub
Electrical control of spin-orbit splitting in GaAs/AlGaAs coupled quantum wells

SRPN.02o ***R.V. Cherbunin,*** M.S. Kuznetsova, S.V. Potavtsev, I.Ya. Gerlovin, I.V. Ignatiev, Yu.K. Dolgikh, Yu.P. Efimov, S.A. Eliseev, V.V. Petrov, A.V. Larionov and A.I. Il'in
Carrier spin dynamics in quantum wells GaAs under lateral localizing electric potential

SRPN.03o ***S.Yu. Verbin,*** R.V. Cherbunin, T. Auer, D.R. Yakovlev, M. Bayer, D. Reuter, A.D. Wieck, I.Ya. Gerlovin and I.V. Ignatiev
Dynamics of nuclear spin polarization in InGaAs quantum dots

SRPN.04o ***A. F. Zinovieva*** A. V. Dvurechenskii, N. P. Stepina, A. I. Nikiforov, L. V. Kulik and A. S. Lyubin
Spin-echo measurements of electrons localized on Ge quantum dots

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Nanostructure Characterization 10:30 – 11:50

Chairman: *A. Chaplik*

NC.01o V.Ya. Aleshkin, A.V. Antonov***, V.I. Gavrilenko,*** L.V. Gavrilenko and B.N. Zvonkov
Phonon induced Fano resonances in photocurrent spectra of InP doped with shallow donors

NC.02o V.Ya. Aleshkin, A.A. Dubinov, L.V. Gavrilenko, ***Z.F. Krasilnik***, D.I. Kuritsyn, D.I. Kryzhkov, S.V.Morozov
Picosecond dynamics of transmittance in GaAs/InGaAs quantum well heterostructure

NC.03o ***D.V. Marin,*** V.A. Volodin, E.B. Gorokhov, H. Rinnert, P. Miska and M. Vergnat
Visible photoluminescence from Ge nanocrystals in GeO_2 matrix

NC.04o ***R.V. Romashko,*** Yu.N. Kulchin, S.Di Girolamo, A.A. Kamshilin and J.-C. Launay
Multi-channel adaptive measurement system for sub-nanometer metrology

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Nanostructure devices 12:10 – 13:10

Chairman: *S. Tarucha*

NSD.01o ***Zs.J. Horvath,*** P. Basa, T. Jaszi, A.E. Pap, A.I. Kovalev, D.L. Wainstein and L. Dozsa
MNOS memory structures with embedded silicon nanocrystals

NSD.02o ***K. Kral***
Quantum dot nanodevice with electron-phonon interaction

NSD.03o ***V. V. Koledov*** V. Ya. Pokrovskii and S. G. Zybtsev
Self-sensitive torsional microresonators based on a charge-density wave system

Lasers and Optoelectronic Devices – 2 14:40 – 15:50

Chairman: *A. Dvurechenskii*

LOED.05i ***V.A. Haisler***
Single photon solid state emitter

LOED.06o ***L.Ya. Karachinsky,*** I.I. Novikov, G. Fiol, M. Kuntz, Yu.M. Shernyakov, N.Yu. Gordeev, M.V. Maximov, M.B. Lifshits, T. Kettler, K. Posilovic, V.A. Shchukin, N.N. Ledentsov, S.S. Mikhrin and D.Bimberg
High-Power Wavelength Stabilized Laser Based on the Tilted Cavity Concept

LOED.07o ***S.V. Zaitsev,*** M.V. Dorokhin, Yu.A.Danilov, P.B. Demina, V.D. Kulakovskii and B.N. Zvonkov
Circular polarized electroluminescence in diodes with InGaAs/GaAs quantum wells and Mn δ-lay

Nitride Nanostructures 16:00 – 17:00

Chairman: *N. Sibel'din*

NNS.01i ***T. V. Shubina***, M. M. Glazov, A. A. Toropov, N. A. Gippius, J. P. Bergman, B. Monemar, A. Usui, A. Vasson, J. Leymarie, S. V. Ivanov, and P. S. Kop'ev
Slow light in GaN

NNS.02i ***A. Yoshikawa,*** S. B. Che, Y. Ishitani, X. Q. Wang, H. Saito, T. Fujimoto, N. Hashimoto, A. Hikida, K. Matsui, A. Yuki, M. Otsuki, K. Soudalin and E. S. Hwang
Fabrication and characterization of one monolayer InN-based novel nanostructures embedded in GaN matrix

Nanostructure Technology –2 17:20 – 18:20

Chairman: *J. Johansson*

NSTE.04o N. V. Sibirev***, V. G. Dubrovskii,*** G. E. Cirlin, V. A. Egorov, Yu. B. Samsoneno, I. P. Soshnikov and V. M. Ustinov
Some calculations related to the growth of GaAs nanowires

NSTE.05o ***A.V. Prinz*** and V.Ya. Prinz
Periodically corrugated nanostructures

NSTE.06o ***A.V. Vakhruchev,*** **A**. Y. Fedotov, L. L. Vakhroucheva, A. A. Shushkov

Mathematical simulation and experimental investigation of the formation of powder nanocomposites

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Poster Session - 2 18:20 - 20:00

Wednesday, July, 16

Nanostructure Technology – Surface Controlled Nanostructure Formation 09:00 – 10:50

Chairman: *A. Latyshev*

SCNF.01i ***A.A. Saranin*** and A.V. Zotov
Self-Assembly formation of Adsorbate Nanostructures on Semiconductor Surfaces with atomic precision

SCNF.02o ***A.V. Zotov,*** A.A. Saranin, Y.L. Wang and M.Y. Lai
Surface magic clusters on silicon

SCNF.03o A.E. Afanasiev***, P.N. Melentiev*** and V.I. Balykin
Fabrication of nanostructures on the surface

SCNF.04o ***D.V. Gruznev,*** D.A. Olyanich, D.N. Chubenko, I.A. Kuyanov, A.V. Zotov and A.A. Saranin
Controllable modification of surface reconstructions

SCNF.05o ***I.B. Troitskaia,*** T.A. Gavrilova, V.G. Kostrovsky, L.D. Pokrovsky and V.V. Atuchin
The synthesis, micromorphology and structure of germanium oxide(IV) nanocrystals

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Spin Related Phenomena in Nanostructures – 2 11:10 – 12:20

Chairman: *K. Kral*

SRPN.05i ***B. Huang*** and I. Appelbaum
Silicon Spintronics

SRPN.06o ***N. Averkiev*** and M. M. Glazov
Optical Orientation and Spin Dynamics in Quantum Wells with Large Spin-Orbit Splitting

SRPN.07o ***K. Shen*** and M. W. Wu

Robust strongly-modulated transmission of a *T*-shaped structure with local Rashba interaction

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Nanostructure Characterization – silicides

12:30 – 14:00

Chairman: *A. Yoshikawa*

NCS01i ***A.V. Latyshev***
Atomic steps and nanoclusters on Si surface

NCS02o ***N.G. Galkin***
Multilayer silicon – silicide heteronanostructures with buried semiconductor silicide nanocrystallites: growth, properties and device perspectives

NCS03o N.G. Galkin***, E.A. Chusovitin,*** D.L. Goroshko, R.I. Batalov, R.M. Bayazitov, T.S. Shamirzaev, A.K. Gutakovsky, K.S. Zhuravlev
and A.V. Latyshev
Si/β-$FeSi_2$/Si heteronanostructures fabricated by ion implantation and Si MBE: growth, structural and luminescence properties

NCS04o ***K.N. Galkin,*** S.A. Dotsenko, N.G. Galkin, V.V. Korobtsov, M. Kumar, Govind and S. M. Shivaprasad
Formation, structural and optical properties of two-dimensional silicide phases in Si(111)/Mg system

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Quantum Wells and Quantum Dots

15:20 – 17:10

Chairman: *V. Volkov*

QW/QD.01i ***A.V. Dvurechenskii*** and A. I. Yakimov
Electronic states in 3D dense array of Ge/Si quantum dots

QW/QD.02o ***M.-E. Pistol,*** N. Sköld, C. Pryor and L. Samuelson
Optical properties of InAs quantum dots in InP quantum wires

QW/QD.03o ***V. G. Talalaev***, J. W. Tomm, N. D. Zakharov, P. Werner, U. Gösele, B. V. Novikov, Yu. B. Samsonenko, V. A. Egorov and G. E. Cirlin
Carrier transfer and light emission in hybrid nanostructures including InGaAs quantum well and quantum dots array

QW/QD.04o ***Katz ,*** V. P. Kochereshko, V. F. Agekyan, L. Besombes and G. Karczewski
Exciton recombination in ZnMnTe quantum well heterostructures

QW/QD.05o N. G. Romanov, ***D. O. Tolmachev***, P. G. Baranov, R. A. Babunts, B. R. Namozov, Yu. G. Kusrayev, I. V. Sedova, S. V. Sorokin and S. V. Ivanov

Evidence of Mn2+ fine structure in CdMnSe/ZnSe quantum dots caused by their low dimensionality

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Poster Session – 3 17:30 – 19:00

Friday, July, 18

Transport in Nanostructures 09:00 – 10:40

Chairman: *J. Johansson*

TN.01o ***Yu.S. Yukecheva,*** A.B. Vorob'ev, V.Ya. Prinz, A.I. Toropov and D.K. Maude
Observation of 2DEG transport in helical geometry at low filling factors

TN.02o ***A.V. Germanenko,*** G.M. Minkov, O.E. Rut, A.A. Sherstobitov and A.K. Bakarov
Weak localization in patterned 2D structures with a single quantum well

TN.03o ***S.N. Artemenko*** and D.S. Shapiro
Current oscillations in strongly correlated quantum wires with an impurity

TN.04o ***N.P. Stepina,*** E.C. Koptev, A.V. Nenashev, A.V. Dvurechenskii and A.I. Nikiforov
The effect of long-range Coulomb interaction on slow relaxation of excess conductance in two-dimensional array of tunnel-coupled Ge/Si quantum dots

TN.05o ***D.A. Tsukanov,*** M.V. Ryzhkova, D.G. Lar'kovich, D.V. Gruznev, O.A. Utas, V.G. Kotlyar, A.V. Zotov and A.A. Saranin
Electrical conductance of Cu nanowires on Si(111)

Lasers and Optoelectronic Devices – 3 11:00 – 12:10

Chairman: *V. Haisler*

LOED.08i ***A. Kovsh,*** A. Gubenko, I. Krestnikov, D. Livshits, S. Mikhrin, J. Weimert, L. West, G. Wojcik, D. Yin, C. Bornholdt, N. Grote, M.V. Maximov and A. Zhukov

Quantum Dot Comb-Laser as a light source for Optical Interconnect technologies

LOED.09o ***V.Ya. Aleshkin,*** A.A. Biryukov, V.I. Gavrilenko, A.A. Dubinov, Vl.V. Kocharovsky, K.V. Maremyanin, S.V.Morozov, S.M.Nekorkin and B.N. Zvonkov
Intracavity difference-frequency generation in butt-joint diode lasers

LOED.10o ***A.A. Kovalyov,*** N.V. Kuleshov, V.E. Kisel, S.V. Kurilchik, O.P. Pchelyakov, V.V. Preobrazhenskii, M.A. Putyato, N.N. Rubtsova and T.S. Shamirzaev
Semiconductor nanostructure mirror for ultrashort-pulse

Technical Session 12:20 – 14:20

Chairman: *A. Saranin*

TS.01i ***V.A. Bykov***
Possibilities of Modern Scanning Probe Microscopy for investigation and modification of biological nanostructures

TS.02i ***G.T. Mikaelyan*** and S.N. Sokolov
Heterostructure Nanolayer Diode Laser Bars and Arrays

TS.03i ***S. Pokrant*** High Resolution Spectroscopy and Energy Filtered Imaging: In-column filter, monochromator technology and corrector integration in the Libra 200 MC

TS.04i ***W. Heichler*** Specialized and customized ultrahigh vacuum systems for Surface Analysis

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Closing Plenary Session 15:30 – 17:30

Chairman: *Zh. Alferov*

CPS.01pl ***Xiaomin Ren,*** Qi Wang, Hui Huang, Yongqing Huang, Aiguang Ren, Deping Xiong, Shiwei Cai, Xia Zhang and Peida Ye
Theory and experimental investigations on boron-incorporated III- V materials for relevant heterostructures

CPS.02pl ***Ming-Wei Wu***
Spin dynamics in semiconductor nanostructures

CPS.03pl ***V.I. Konov***
Single wall carbon nanotubes – a new photonic material

Aixtron Young Scientist Award Ceremony 17:50 – 18:10

Chairman: *Zh. Alferov*

Closing Remarks 18:10 - 18:30

Poster Session – 1

Infrared and Microwave Phenomena in Nanostructures

IRMP.04p ***V.Ya. Aleshkin*** and A.A. Dubinov
Difference frequency generation in GaAs-based butt-joint diode laser with germanium substrate

IRMP.05p ***N.V. Alkeev,*** S.V. Averin and A.A. Dorofeev
Resonant-tunneling heterostructures: new approach in the development of low noise microwave semiconductor devices

IRMP.06p ***O.V. Polischuk,*** V.V. Popov, W. Knap and A.El. Fatimy
Intermode plasmon-plasmon scattering in a nanotransistor with partially gated two-dimensional electron channel

Lasers and Optoelectronic Devices

LOED.11p ***V.Ya. Aleshkin,*** A.A. Biryukov, A.A. Dubinov, V.V.Kocharovsky, Vl.V. Kocharovsky, S.M. Nekorkin and B.N. Zvonkov
The efficient generation of the TE_1 waveguide mode in the InGaAs/GaAs/InGaP heterolaser

LOED.12p ***Yu.A. Morozov,*** M.Yu. Morozov, T. Leinonen and M. Pessa
Effect of carrier generation rate pulsations on quantum wells population in optically-pumped dual-wavelength semiconductor disk laser

LOED.13p ***R.A. Mironov,*** A.O. Zabezhaylov, S.V. Alyshev and E.M. Dianov
Optimization of waveguide properties for mid-IR Cr2+: ZnSe laser

LOED.14p ***A.V. Scherbakov,*** Yu.N. Kulchin, V.P. Dzyba and S.S. Voznesenskiy
Collinear interaction between light beams in the nanocomposite with liquid-phase matrix

Metal Nanostructures

MNS.04p ***A.V. Mikoushkin,*** S.Yu. Nikonov, Yu.S. Gordeev, S.L. Molodtsov and Yu.S. Dedkov
Fabrication and in situ XPS-Diagnostics of a System of Isolated Silver Nanoclusters on silicon surface

MNS.05p ***O. Adiguzel***
Structural characterization of layered martensite structures in copper based shape memory alloys

Microcavity and Photonic Crystals

MPC.01p ***A.V. Medvedev,*** A.B. Pevtsov, S.A. Grudinkin, N.A. Feoktistov, V.A. Sakharov, I.T. Serenkov and V.G. Golubev
Emitting a-SiOx(Er) films and a-SiOx(Er)/a-Si:H microcavities with a controlled erbium doping profile

MPC.02p ***D.A. Kurdyukov,*** S.A. Grudinkin, S.F. Kaplan, N.F. Kartenko and V.G. Golubev
Synthesis of thin-film opal-iron oxide photonic crystals

MPC.03p ***O.N. Kozina*** and L.A. Melnikov
Laser action and spectral and spatial characteristics of radiation of 1D and 2D photonic crystal structure with active layers

MPC.04p M. Barabanenkov, I. Schelokov, Yu. Kholopova, A. Kovalchuk, N. Antonova, E. Polushkin and ***S. Shapoval***
Evanescent waves contribution into efficiency of light-emitting diodes with grating patterned top surface

Nanostructures and Life Science

NSLS.04p ***N. G. Plekhova,*** E. V. Pustovalov, L. M. Somova and V. S. Plotnikov
Viral particles influence on life systems as nanocontainer design prototype for cellular metabolism regulation

NSLS.05p C.H. Lin, ***S.W. Chau,*** J. Guan and L.J. Lee
Study on DNA Molecule Patterning through Dewetting Process on Microwell structure

NSLS.06p ***Heinz C. Schröder***, Xiaohong Wang and W. E. G. Müller
Morphogenetic activity of silica and bio-silica on the expression of genes, controlling biomineralization using SaOS-2 cells

NSLS.07p L.L. Afremov and ***A.V. Panov***
Effect of stresses on saturation remanent magnetization of a nanoparticle ensemble

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Poster Session – 2

Nanostructure Characterization

NC.05p ***V.A. Gaisin,*** B.V. Novikov, V.G. Talalaev, M.O. Tagirov, N.D. Zakharov, G.E. Cirlin, Yu.B. Samsonenko, A.A. Tonkikh and V.A. Egorov

The influence of hydrostatic pressure and temperature on photoluminescence spectrum of multilayer-structures planarly ordered quantum dot InAs/GaAs

NC.06p ***V.Ya. Aleshkin,*** A.V. Antonov, V.I. Gavrilenko, D.V. Kozlov and B.N. Zvonkov
Impurity photoconductivity in strained p-InGaAs/GaAsP heterostructures

NC.07p ***A.V.M. Mikoushkin,*** V.V. Shnitov, V.V. Bryzgalov, Yu.S. Gordeev, O.V. Boltalina, I.V. GolTdt, S.L. Molodtsov and D.V. Vyalikh
Shell Electronic Structure of Unoccupied States of Fullerenes and Ffluorinated Fullerenes C60Fx (x = 0, 18, 36)

NC.08p ***B.D. Zaitsev,*** I.E. Kuznetsova, A.M. Shikhabudinov, V.V. Kolesov, A.S. Fionov and I.D. Kosobudskii
Modulus of elasticity and viscosity coefficients ofpolymeric nanocomposite films with Fe and CdS nanoparticles

NC.09p D.M. Kulbatskii, A.N. Ul'zutuev, K.A. Razumov, ***N.M. Ushakov,*** I.D. Kosobudskii and G.Yu. Yurkov
Thermodielectric and frequency properties of polymer nanocomposites based on oxides and sulphides of transitional metals in low density polyethylene

NC.10p ***V.A. Stuchinsky*** and D.V. Marin
Exciton lifetime in SiO2 layers with embedded silicon nanocrystals as a function of the “dark” fraction of nanocrystals in the system

NC.11p ***P.V. Seredin,*** E.P. Domashevskaya, N.N. Gordienko, A.V. Glotov, I.N. Arsentyev, I.S. Tarasov and M.V. Shishkov
Role of the buffer porous layer and dysprosium doping in GaInP:Dy/por-GaAs/GaAs(100) heterostructure

NC.12p ***P.V. Seredin,*** E.P. Domashevskaya, N.N. Gordienko, N.A. Rumyantseva, B.L. Agapov, I.N. Arsent'ev and I.S. Tarasov
Composition and parameters of domains formed as a result of spinodal decomposition of quaternary alloys in the epitaxial GaInP/InGaAsP/GaInP/GaAs(001) heterostructures

NC.13p ***A.A. Kovalyov***
Exact finding of optical parameters for real semiconductor heterostructures

NC.14p ***E.B. Modin,*** O.V. Voitenko, S.V. Dolzhikov and E.V. Pustovalov
Electron tomography modelling of nanocluster in amorphous matrix

NC.15p ***V.V. Meriakri,*** S. Bourbigot, M. Delichatsios, I. Nikitin, M. Parkhomenko and F. Samyn
Remote Determination of the Surface Temperature of Nanonylon 6 by means of millimeter waves

NC.16p ***O.E. Glukhova*** and O.A. Terentev

Theoretical study of the influence of the electric field on the emission from carbon bamboo-like nanotubes

NC.17p ***V.P. Dzyuba*** and Yu.N. Kulchin
Models of absorption cross-section and scattering cross-section of light by dielectric nanoparticles

NC.18p ***G.A. Kachurin***, S.G. Cherkova, R.A. Yankov and D.V. Marin
Light-emitting Si nanostructures formed in SiO2 by pulsed anneals

Nanostructure Characterization – silicides

NCS.05p ***M.V. Ivanchenko,*** E.A. Borisenko, V.G. Kotlyar, O.A. Utas, A.V. Zotov, A.A. Saranin, N.I. Solin, L.N. Romashev and V.V. Ustinov
Self-Organization of $FeSi_2$ nanodots Si(111)7x 7 and Si(111)√3x √3-R30 B surfaces

NCS.06p A.A. Klochikhin and ***I.Yu. Strashkova***
The Hartree-Fock-Slater equation for the planar accumulation layer of n-InN

NCS.07p ***V.V. Balashev,*** V.V. Korobtsov, T.A. Pisarenko and E.A. Chusovitin
Investigation of iron silicide islands grown by solid phase epitaxy on Si(001) surface

NCS.08p ***N.I. Plusnin***
Electron interaction, film nanophases and nanoheterostructure formation

NCS.09p S.A. Kitan'***, V.M. Il'yashenko*** and N.I. Plusnin
Morphology and optical properties of Fe-Si film-wise nanophases on Si(111) after exposition to air

NCS.10p ***S.A. Dotsenko,*** N.G. Galkin and K.N. Galkin
In situ optical method for calculation of desorption parameters of easily melted thin metal films

Nanostructure Devices

NSD.04p St.Collin, F. Pardo, ***St. Averin***, N. Bardou and J.-L. Pelouard
Efficient light absorption in high-speed metal-semiconductor-metal nanostructures

NSD.05p ***A.S. Vedeneev***, B.A. Aronzon, A.B. Davydov, A.M. Kozlov, P.E. Ruzanov, A.S. Bugaev, J. Galibert and J. Leotine
Quantum point contacts in disordered Si-MNOS mesoscopic structures with inversion n-channel: Percolation path locality and magneto-transport peculiarities

NSD.06p ***V. Shavrov***, V. Koledov, A. Kirilin, V. Khovaylo, G. Lebedev, V. Pushin and A. Tulaikova
New Shape Memory Nanoactuator

NSD.07p ***G. V. Chucheva***, E. I. Goldman, Yu. V. Gulyaev and A. G. Zhdan
Peculiarities of current-voltage tunnel characteristics of Al-SiO_2-n-Si structures with the ultrathin oxide in a state of the Si surface depletion

Nanostructure Technology

NSTE.07p ***I.P. Soshnikov,*** G.E. Cirlin, Yu.B. Samsonenko, N.D. Il'inskaya, Yu. Zadiranov and V.M. Ustinov
Growth of GaAs nanowhiskers in mesa

NSTE.08p ***A.N. Semenov,*** B.Ya. Meltser, Ya.V. Terent'ev, V.A. Solov'ev, T.B. Popova, I.A. Andreev, E.V. Kunitsyna and S.V. Ivanov
Molecular beam epitaxial growth of thermodynamically metastable GaInAsSb alloys for mid-IR photodetectors

NSTE.09p ***A.A. Lyamkina,*** D.V. Dmitriev, S.P. Moshchenko, V.A.Haisler, Yu.G. Galitsyn and A.I. Toropov
Castle-like quantum dot complexes formed by indium droplet epitaxy on (001)GaAs substrate

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Poster Session – 3

Nanostructure Technology - Surface controlled nanostructures formation

SCNF.06p ***D.A. Olyanich,*** D.V. Gruznev, D.N. Chubenko, A.V. Zotov and A.A. Saranin
Growth of metal nanoislands on the Si(100)-c(4x12)–Al template reconstruction

SCNF.07p ***V.G. Kotlyar,*** O.A. Utas, D.V. Gruznev, B.K. Churusov, A.N. Kamenev, A.V. Zotov and A.A. Saranin
Multi-mode growth in Cu/Si(111) system: Magic nanoclustering, layer-by-layer epitaxy and nanowire formation

SCNF.08p ***E.E. Rodyakina,*** S.S. Kosolobov and A.V. Latyshev
Initial stages of homoepitaxial growth on flat silicon (111)-7x7 surface

SCNF.09p ***A.G. Zhuravlev*** and V.L. Alperovich
Electronic states induced by antimony and cesium on atomically flat GaAs(001) surface

SCNF.10p A.N. Karpov, I.G. Neizvestny, ***N.L. Shwartz*** and Z.Sh. Yanovitskaya
Monte Carlo simulation of silicon surface active and passive oxidation by O2 and nc-Si aggregation in SiO_x layers

SCNF.11p ***Yu.V. Luniakov***
The first principle simulation of structure and stability of Al magic clusters on the Ge-modified Si(111)7x7 surfaces

SCNF.12p Yu.V. Luniakov***, I.A. Kuyanov***, A.V. Zotov, A.A. Saranin, M. Katayama and K. Oura
Antiphase-boundary formation in monolayer Tl/Ge(100) system: Scanning tunneling microscopy and total-energy calculations

SCNF.13p ***S.A. Arzhannikova***
Nucleation and crystallization in a-Si:H films during femtosecond laser irradiation

SCNF.15p ***D.V. Sheglov,*** E.B. Gorokhov, V.A. Volodin, K.N. Astankova and A.V. Latyshev
Scanning probe induced local decomposition of solid germanium monoxide film: the nano-patterning possibilities

Quantum Wells and Quantum Dots

QW/QD.06p ***T.S. Shamirzaev,*** A.V. Nenashev and K.S. Zhuravlev
Direct-indirect transition of conduction band structure in type-I InAs/AlAs quantum dots

QW/QD.07p ***L.A. Chernozatonskii*** and P.B. Sorokin
2D-superlattices based on the adsorbed hydrogen molecules: the structure and properties

QW/QD.08p ***A.V. Nenashev,*** E.A. Duljaninova and A.V. Dvurechenskii
Elastic anisotropy in quantum dots and wires: analytical treatment

QW/QD.09p ***I.V. Kucherenko,*** V.S. Vinogradov, N.N. Melnik, L.V. Arapkina, V.A. Chapnin, K.V. Chizh and V.A. Yur'ev
Effect of interdiffusion and quantum confinement on Raman spectra of the Ge/Si(100) heterostructures with quantum dots

QW/QD.10p K.V. Zakharchenko, A.A. Chystyakov, V.A. Karavanskii, V.I. Krasovskii and ***A.V. Kulikovskiy***
Nonlinear optical properties of solutions and films of CdSe nanoparticles with ZnS shell

QW/QD.11p ***V. Mikhajlov***
Temperature and particle number oscillations of the electron canonical heat capacity

QW/QD.12p ***M. D. Efremov,*** V. A. Volodin, D. V. Marin, S. A. Arzannikova and S. P. Bardakhanov
Shining silicon nanopowder with photoluminescence in blue-red region of light emission

QW/QD.13p ***V. Chernov,*** T. Piters, R. Melendrez and M. Barboza-Flores
Thermally and infrared stimulated luminescence in beta-irradiated CdS-CdSe doped borosilicate glasses

QW/QD.14p ***N.K. Kuzmenko*** and V. M. Mikhajlov

Temperature and particle number oscillations of the electron canonical heat capacity

Spin Related Phenomena in Nanostructures

SRPN.08p ***V.A. Sablikov*** and B.S. Shchamkhalova
Simple model of spin polarized state in quantum point contacts

SRPN.09p ***M.Yu. Petrov,*** G.G. Kozlov, R.V. Cherbunin and I.V. Ignatiev
Generalization of box-model for the description of nuclear spin polarization in quantum dots

SRPN.10p ***A.V. Chernenko,*** A.S. Brichkin, N.A. Sobolev and V.D. Kulakovskii
Non-radiative recombination of e-h complexes in semimagnetic quantum dots structures

SRPN.11p ***N.V. Vorob'eva,*** A.N. Lachinov, Jan Genoe and A.A. Lachinov
Variable threshold for giant magnetoresistance in Ni-polymer-Cu system

Transport in Nanostructures

TN.06p ***L. Magarill***
Photocurrent and photovoltage in curved 1D systems.

TN.07p M.V. Entin and ***M.M. Mahmoodian***
High frequency blockade and local states in a periodic lattice of quantum dots

TN.08p ***S.A. Arzannikova,*** M.D. Efremov, G.N. Kamaev, G.A. Kachurin, D.V. Marin and V.A. Volodin
Carrier localization in silicon nanocrystals embedded in SiOx films and exchanging of charge

TN.09p V.L. Gurtovoi, A.I. Il'in, ***A.V. Nikulov*** and V.A. Tulin
The dc voltage proportional to the persistent current observed on system of asymmetric mesoscopic loops

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