

Program

Organizers:
ITMO University
Fund for Laser Physics
EU Marie Curie Initial Training Network «INDEED»

Co-chairs:
Vladimir Dubrovskii
Frank Glas

Sponsors:
ITMO University
Ministry of Education and Research of the Russian Federation
EU Marie Skłodowska-Curie ITN «INDEED»
Russian Foundation for Basic Research

- p-Tue10 Stationary and transient optical measurements in semiconductor nanowires
A.K. Sivan, L. Di Mario, S. Rubini and F. Martelli
- p-Tue12 Ordered GaAs nanowire arrays on silicon and dopant incorporation studies
W. Kim, V.G. Dubrovskii, Vukajlovic-Plestina, G. Tuñuicuöglu, L. Francaviglia, D. Mikulik, E. Stutz, L. Guñiat, H. Potts, M. Friedl, J.-B. Leran and A. Fontcuberta i Morral
- p-Tue13 Turning the growth direction of GaAs NWs during self-catalyzed MBE
E. Koivusalo, T. Hakkarainen, M. Guina
- p-Tue15 Nucleation limited composition of ternary nanowires
E.D. Leshchenko, M. Ghasemi, V.G. Dubrovskii, J. Johansson
- p-Tue17 Controlling the surface morphology of III-V semiconductor nanowires
N. Peric, A. Diaz-Alvarez, T. Xu, M. Schnedler, I. Lefebvre, G. Patriarche, J.P. Nys, S.R. Plissard, P. Caroff, M. Berthe, H. Eisele, R.E. Dunin-Borkowski, Ph. Ebert, B. Grandidier
- p-Tue18 Growth of advanced functional heterostructures in III-V nanowires
A. Pishchagin, F. Glas, J.-C. Harmand, F. Oehler
- p-Tue19 MBE growth and optical properties of GaN, InN and III-V nanowires on SiC/Si(111) hybrid substrate
R.R. Reznik, K.P. Kotlyar, I.P. Soshnikov, E.V. Nikitina, S.A. Kukushkin, A.V. Osipov and G.E. Cirlin
- p-Tue20 Structural and transport properties of Be-doped self-catalysed GaAs nanowires grown by molecular beam epitaxy
M.R. Piton, E. Koivusalo, S. Suomalainen, T. Hakkarainen, S. Souto, H.V.A. Galeti, D. Lupo, A.D. Rodrigues, Y.G. Gobato and M. Guina
- p-Tue21 Preparing nanomaterials based on metals and DNA
P. Rojas, P.R. Martínez, B. Horrocks, A. Houlton
- p-Tue23 Using carbon-nanotube classifiers to diagnose diseases
E. Vissol-Gaudin, A. Kotsialos, C. Pearson, C. Groves, M.C. Petty and D.A. Zeze
- p-Tue24 Increasing nanowire diameters for solar cell applications
D. Paige Wilson, R.R. LaPierre
- p-Tue25 Model for growth modes of PA MBE GaN nanowires
Y. Berdnikov, N.V. Sibirev
- p-Tue26 Vapor-solid-solid growth mechanism of Au-catalyzed III-V nanowires
A.A. Koryakin, S.A. Kukushkin, N.V. Sibirev
- p-Tue27 Au droplet stability in InAs nanowires growth
A.S. Sokolovskii, V.G. Dubrovskii

09:00–10:00 **Oral Session • Nanostructure Technologies and Engineering**

Chair: R. LaPierre

- 09:00–09:30 i-Fri1 Changing the properties of GaAs via strain engineering in core/shell nanowires *E. Dimakis*
- 09:30–10:00 i-Fri2 Evolvable Nanomaterial device concept *D. Zeze*
- 10:00–10:30 Coffee break
- 10:30–12:00 **Oral Session • Nanowires and Synthesis Methods 4** Chair: D. Zeze
- 10:30–11:00 i-Fri3 Using Bi for the formation of group-III arsenide nanostructures *L. Geelhaar*
- 11:00–11:30 i-Fri4 Guided nanowire optoelectronics *E. Joselevich*
- 11:30–12:00 i-Fri5 Self-catalyzed molecular beam epitaxy of GaAs nanowires for photonic applications *T. Hakkarainen*, E. Koivusalo, M.R. Piton, E. Petronijevic, G. Leahu, A. Belardini, M. Centini, C. Sibilia, V.G. Dubrovskii, M. Guina
- 12:30–14:00 Lunch
- 14:00–16:00 **Oral session • Characterization, properties and applications**
Chair: L. Geelhaar
- 14:00–14:30 i-Fri6 New opportunities at european XFEL *R. Feidenhans'l*
- 14:30–15:00 i-Fri7 Low temperature plasma deposition processes: from amorphous silicon to epitaxial growth and nanowires *P. Roca i Cabarrocas*
- 15:00–15:30 i-Fri8 Nano and microstructures for the manipulation of THz radiation *A. Gallant*
- 15:30–16:00 i-Fri9 Intervalley mixing due to interfaces in semiconductor nanostructures *M.O. Nestoklon*
- 16:00–16:30 Coffee break
- 16:30–17:00 **Closing remarks**
- 17:00–20:00 Free time
- 20:00 **Conference banquet and Poster award**

Poster Session • Tuesday, May 8 *New Peterhof Hotel, Peterhof*

- p-Tue1 Flexible optoelectronic devices based on III-nitride nanowires *N. Amador*, N. Guan, X. Dai, H. Zhang, V. Piazza, A. Kapoor, C. Bougerol, L. Mancini, F.H. Julien, H. Chalermchai, A. Cattoni, S. Collin, F. Oehler, J.-C. Harmand, J. Eymery, C. Durand and M. Tchernycheva
- p-Tue2 Cadmium telluride nanowire growth for photovoltaic application *M. Apollo*, J. Major, W. Stepniowski, M. Tormen and K. Durose
- p-Tue5 InGaAs nanowires grown on GaAs nanomembranes by MBE *M. Friedl*, A. Balgarkashi, L. Francaviglia, S. Marti-Sanchez, L. Güniat, W. Kim, V.G. Dubrovskii, J. Arbiol, A. Fontcuberta i Morral
- p-Tue6 Large area single crystal ZnO nanowires grown on ALD seed layers *A. Galan*, A.J. Gallant, A. Fontcuberta i Morral, F. Alkhalil, D.A. Zeze, D. Atkinson
- p-Tue7 Lasers, sources of single photons and entangled photon pairs based on quantum dot in nanowire system *Z.M. Lashkani*, *E. Gholami*
- p-Tue9 Nanowires as the object of patenting: landscaping *V. Kaliteevskii*, L. Chechurin

TIMETABLE

Monday, May 7 *New Peterhof Hotel, Peterhof*

18:00–20:00 Registration

20:00–23:00 **Welcome party**

Tuesday, May 8 *New Peterhof Hotel, Peterhof*

08:45–09:00 **Opening remarks** V.G. Dubrovskii and F. Glas

09:00–10:30 **Oral Session • Theory and Self-Assembly** Chair: V.G. Dubrovskii

10:30–11:00 Coffee break

11:00–12:30 **Oral Session • Nanowires and Synthesis Methods 1** Chair: F. Glas

12:30–14:00 Lunch

14:00–17:00 **Excursion Peterhof Grand Palace and Lower Park,**

17:00–18:30 **Poster introduction** refreshments after

18:30–20:00 **Poster viewing with beer**

20:00 Dinner

Wednesday, May 9 *New Peterhof Hotel, Peterhof*

08:45–09:00 Registration

09:00–10:30 **Oral Session • Nanowires and Synthesis Methods 2**

10:30–11:00 Coffee break Chair: A. Fontcuberta i Morral

11:00–12:00 **Oral Session • Nanostructure Devices** Chair: P. McIntyre

12:30–14:00 Lunch

15:00–16:00 **Oral Session • Nanowires and Synthesis Methods 3**

16:00–16:30 Coffee break Chair: J.-C. Harmand

16:30–18:30 **Oral Session • Theory and Characterization** Chair: J. Tersoff

18:30–20:00 Free time

20:00 Dinner

Thursday, May 10 • Excursion day

09:15 Meeting at the reception

10:00 **Lower Park of Peterhof**

10:35–11:20 **Hydrofoil boat to St Petersburg**

11:45–13:45 **Excursion, the State Hermitage**

14:00–15:00 Lunch

15:30–17:30 **Boat tour via city center (the pier near the Palace bridge)**

18:00–19:30 **Bus excursion along the Old-Peterhof road to the hotel**

20:00 Dinner

Friday, May 11 *New Peterhof Hotel, Peterhof*

08:45–09:00 Registration

09:00–10:00 **Oral Session • Nanostructure Technologies and Engineering**

10:00–10:30 Coffee break Chair: R. LaPierre

10:30–12:00 **Oral Session • Nanowires and Synthesis Methods 4** Chair: D. Zeze

12:30–14:00 Lunch

14:00–16:00 **Oral session • Characterization, properties and applications**

16:00–16:30 Coffee break Chair: L. Geelhaar

16:30–17:00 **Closing remarks**

17:00–20:00 Free time

20:00 **Conference banquet and Poster award**

Monday, May 7

New Peterhof Hotel, Peterhof

18:00–20:00 Registration

20:00–23:00 **Welcome party**

Tuesday, May 8

New Peterhof Hotel, Peterhof

08:45–09:00 **Opening remarks** V.G. Dubrovskii and F. Glas

09:00–10:30 **Oral Session • Theory and Self-Assembly** Chair: V.G. Dubrovskii

09:00–09:30 **i-Tue1** Self-assembly of ordered graphene nanodot arrays within a 2D BCN alloy
J. Tersoff, L. Camilli, J.H. Jørgensen, A.C. Stoot, R. Balog, A. Cassidy, J.T. Sadowski, P. Bøggild, L. Hornekæ

09:30–10:00 **i-Tue2** Understanding the composition of VLS grown ternary III-V nanowires
J. Johansson, E.D. Leshchenko, and M. Ghasemi

10:00–10:30 **i-Tue3** Dislocations in photonic heterostructures *A.E. Romanov*

10:30–11:00 Coffee break

11:00–12:30 **Oral Session • Nanowires and Synthesis Methods 1** Chair: F. Glas

11:00–11:30 **i-Tue4** Growth of III-V nanowires observed in situ by TEM
J.-C. Harmand

11:30–12:00 **i-Tue5** The MBE growth of oxides, such as Ga₂O₃ in the form of planar layers
H. Riechert

12:00–12:30 **i-Tue6** Novel compound semiconductor nanostructures for photonics
A. Fontcuberta i Morral

12:30–14:00 Lunch

14:00–17:00 **Excursion Peterhof Grand Palace and Lower Park**, refreshments after

17:00–18:30 **Poster introduction**

18:30–20:00 **Poster viewing with beer**

20:00 Dinner

Wednesday, May 9

New Peterhof Hotel, Peterhof

08:45–09:00 Registration

09:00–10:30 **Oral Session • Nanowires and Synthesis Methods 2**

Chair: A. Fontcuberta i Morral

09:00–09:30 **i-Wed1** Group IV nanowire structure, luminescence and carrier dynamics
P.C. McIntyre

09:30–10:00 **i-Wed2** Nitride nanowires on graphene for flexible optoelectronics
M. Tchernycheva, N. Guan, M. Morassi, L. Mancini, C. Barbier, N. Amador, A. Kapoor, J. Eymery, C. Durand, L. Lu, N. Gogneau, A. Madouri, F.H. Julien, L. Largeau, J.-C. Harmand

10:00–10:30 **i-Wed3** HVPE of binary and ternary III-Nitride nanostructures and nanowires
Y.André

10:30–11:00 Coffee break

11:00–12:00 **Oral Session • Nanostructure Devices** Chair: P. McIntyre

11:00–11:30 **i-Wed4** Advances of quantum dots for lasers and single photon sources *Y. Arakawa*

11:30–12:00 **i-Wed5** Resonant effects in delayed feedback lasers *E. Viktorov*

12:30–14:00 Lunch

14:00–16:00 **Oral Session • Nanowires and Synthesis Methods 3**

Chair: J.-C. Harmand

14:00–14:30 **i-Wed6** III-V materials development for nanowire photodetectors and photovoltaics
R.R. LaPierre

14:30–15:00 **i-Wed7** Optical and phononic properties of nanowires on demand *M. De Luca*

15:00–15:30 **i-Wed8** Hybrid quantum dot in a nanowire systems
G.E. Cirlin, N. Akopian

15:30–16:00 **i-Wed9** Self-assembled formation of GaN nanowires on amorphous substrates
Z. Zytkiewicz

16:00–16:30 Coffee break

16:30–18:30 **Oral Session • Theory and Characterization** Chair: J. Tersoff

16:30–17:00 **i-Wed10** “Stopping” effect and its role in oscillations of truncation in III-V nanowires *V.G. Dubrovskii, F. Glas, G. Patriarche, F. Panciera, J.-C. Harmand*

17:00–17:30 **i-Wed11** The formation of truncated interfaces in nanowire growth *F. Glas*

i-Wed12 Small angle X-ray scattering of a stretchable photonic crystal *A.M. Korsunsky, I.P. Dolbnya, T. Sui, J.J. Baumberg, Q. Zhao*

18:00–18:30 **i-Wed13** Quantum chemical modelling of epitaxial transformation of silicon to silicon carbide *A. Osipov*

18:30–20:00 Free time

20:00 Dinner

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09:15 Meeting at the reception to go to Lower Park of Peterhof

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10:35–11:20 **Hydrofoil boat to St Petersburg**

11:30–13:00 **Excursion, the State Hermitage**

14:00–15:00 Lunch

15:30–17:00 **Boat tour via city center (the pier near the Palace bridge)** The route of the boat trip: Neva River, Fontanka river, Kryukov canal, Griboedov canal, Moika river, Winter canal, Neva river

17:00–18:00 Free time

18:00–19:30 **Bus excursion along the Old-Peterhof road to the hotel**

20:00 Dinner

Friday, May 11

New Peterhof Hotel, Peterhof

08:45–09:00 Registration

Oral Sessions