



International Scientific Conference

**SUPERCONDUCTING  
QUANTUM  
TECHNOLOGIES  
2018**

(Moscow, July 30 - August 3, 2018)

## Monday (30th July)

9:00 - 9:45

Registration

9:45 - 10:00

Opening address

Morning session: Quantum Computing and superconducting qubits I

10:00 - 10:35

Walter Pogosov  
*(Invited)*  
Dukhov Research  
Institute of Automatics,  
Russia

Quantum algorithms  
implementation with IBM  
quantum computers: from digital  
modeling of spin dynamics to  
quantum machine learning

10:35 - 11:10

Olivier Buisson  
*(Invited)*  
CNRS, France

High fidelity qubit readout using  
a V-shaped transmon in a 3D  
cavity

11:10 - 11:40

Coffee break

11:40 - 12:15

Yuriy Makhlin  
*(Invited)*  
Higher School of  
Economics and Landau  
Institute, Russia

Majorana qubit operations in  
Josephson-qubit chains

12:15 - 12:50

Gregor Oelsner  
*(Invited)*  
Institute of Photonic  
Technology (IPHT),  
Germany

Possible extensions of the  
toolbox for quantum-optics on  
superconducting systems

12:50 - 14:30

Free time for lunch

Evening session: Quantum Computing and superconducting qubits II

14:30 - 15:05

Peter Leek  
*(Invited)*  
University of Oxford, UK

Coaxial multilayer  
superconducting circuits for  
quantum computing

15:05 - 15:40 Uwe Dietmar Huebner  
*(Invited)*  
Institute of Photonic  
Technology (IPHT), Germany Technological aspects for  
fabrication of solid-state  
qubit-devices

15:40 - 16:10 Coffee break

16:10 - 16:45 Vladimir Manucharyan  
*(Invited)*  
University of Maryland, USA Next generation  
superconducting qubits

16:45 - 17:05 Boris Bantysh  
*(Contributed)*  
Institute of Physics and  
Technology, Russia Quality control of IBM  
superconducting quantum  
processor

## Tuesday (31st July)

Morning session: Quantum Computing and superconducting qubits III

10:00 - 10:35 Daniel Egger  
*(Invited)*  
IBM Research, Switzerland Manipulating fixed-frequency  
superconducting qubit states  
using all microwave drives

10:35 - 11:10 Lev Ioffe  
*(Invited)*  
University of  
Wisconsin-Madison, USA Superinductors based on strongly  
disordered superconductors and  
their use for the protected qubits  
and fault tolerant operations

11:10 - 11:40 Coffee break

11:40 - 12:15 Gerhard Kirchmair  
*(Invited)*  
Innsbruck, Austria Superconducting Qubits for  
Analog Quantum Simulation

12:15 - 12:50 Mikhail Fistul  
*(Invited)*  
IBS Center for Theoretical  
Physics of Complex Systems,  
Daejeon, South Korea Collective quantum coherent  
states in large networks of  
strongly interacting qubits

12:50 - 14:30

Free time for lunch

Evening session: Quantum Computing and superconducting qubits IV

14:30 - 15:05

**Paul Bunyk**  
*(Invited)*  
D-Wave, Canada

Teaching this puppy new tricks,  
or, games people play with  
2000-qubit quantum processors

15:05 - 15:40

**Aleksey Fedorov**  
*(Contributed)*  
Russian Quantum Center,  
Russia

Machine learning with noisy  
intermediate-scale quantum  
devices.

15:40 - 16:10

Coffee break

16:10 - 17:30

Poster session

## Wednesday (1st August)

Morning session: Interaction of qubits with an environment

10:00 - 10:35

**Jukka Pekola**  
*(Invited)*  
Aalto University, Finland

Circuit QTD with  
superconducting qubits

10:35 - 11:10

**Sergei Kubatkin**  
*(Invited)*  
Chalmers University,  
Sweden

Sources of Decoherence In  
Superconducting Quantum  
devices

11:10 - 11:40

Coffee break

11:40 - 12:15

**Shiro Kawabata**  
*(Invited)*  
AIST, Japan

Large-scale superconducting  
quantum annealing machine based  
on 2.5D packaging technology and  
application specific architecture

12:15 - 12:35 Bayan Karimi  
*(Contributed)*  
*Aalto University, Finland* | Experimental realization of a quantum heat valve: Towards a superconducting Otto refrigerator

12:35 - 12:55 Elsa Mannila  
*(Contributed)*  
*Aalto University, Finland* | Parity effect does not mean a superconductor free of quasiparticles

12:55 - 17:00 Free time

17:00 - 21:30 Conference dinner on a boat from Kitay Gorod

## Thurthday (2nd August)

Morning session: Quantum optics I

10:00 - 10:35 Rudolf Gross  
*(Invited)*  
*Technical University of Munich, Germany* | Quantum Microwave Communication with Superconducting Quantum Circuits

10:35 - 11:10 Dmitri Averin  
*(Invited)*  
*Stony Brook University, SUNY, USA* | Indistinguishability of quantum states and rotation counting

11:10 - 11:40 Coffee break

11:40 - 12:15 Yu-xi Liu  
*(Invited)*  
*Tsinghua University, China* | Electromagnetically induced transparency in superconducting quantum circuits. From classical to quantum.

12:15 - 12:50 Zhi-hui Pen  
*(Invited)*  
*Hunan Normal University, China* | Resonance Fluorescence from an artificial atom strongly coupled to a cavity

12:50 - 14:30

Free time for lunch

Evening session: Quantum Optics II

14:30 - 15:05

Teun Klapwijk  
*(Invited)*  
TU Delft, Netherlands/  
MSPU, Russia

The effect of microwaves on the  
properties of superconductors

15:05 - 15:40

Alexander Zorin  
*(Invited)*  
PTB, Germany

Traveling-wave Josephson  
parametric amplifiers with  
three-wave mixing

15:40 - 16:10

Coffee break

16:10 - 16:45

George Tsironis  
*(Invited)*  
University of Crete,  
Greece

Nonlinear dynamics in SQUID  
metamaterials: Breathers,  
chimeras, flat bands and  
machine learning predictions

## Friday (3rd August)

Morning session: Mesoscopics of superconductors

10:00 - 10:35

Sebastian de Graaf  
*(Invited)*  
National Physical  
Laboratory (NPL), UK

Duality and the Charge Quantum  
Interference Device

10:35 - 11:10

Pertti Hakonen  
*(Invited)*  
Aalto University, Finland

Josephson effect in suspended  
single-walled carbon nanotubes

11:10 - 11:40

Coffee break

11:40 - 12:15

Andrey Semenov  
*(Invited)*  
Lebedev Institute, RAS

Full counting statistics of  
quantum phase slips

12:15 - 12:50

**Alexander Golubov**  
*(Invited)*  
University of Twente,  
Netherlands

Direct Evidence of Proximity  
Induced Abrikosov Vortex Core  
in a Nonsuperconducting Metal

12:50 - 14:30

Free time for lunch

Evening session: Applications of superconducting systems

14:30- 14:50

**Igor Soloviev**  
*(Contributed)*  
Lomonosov Moscow  
State University (MSU),  
Russia

Basic elements of adiabatic  
superconducting artificial neural  
network

14:50- 15:10

**Aleksey Bolgar**  
*(Contributed)*  
Moscow Institute of  
Physics and Technology  
(MIPT), Russia

Quantum Regime of a  
Two-Dimensional Phonon Cavity

15:10- 15:30

**Aleksey Dmitriev**  
*(Contributed)*  
Moscow Institute of  
Physics and Technology  
(MIPT), Russia

Effects of wave mixing on a  
single artificial atom

15:30 - 16:10

Coffee break

16:10 - 16:20

Closing remarks

<http://sqt-conference.ru>