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**Skoltech**

Skolkovo Institute of Science and Technology

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**Academic  
Council**

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**Annual  
Report**

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# Executive Summary

Skoltech Academic Council in its present composition was established in June 2016 by the decision of Board of Trustees<sup>1</sup>.

As the Institute's collegial body for implementing a shared governance system, the Academic Council oversees educational, scientific, research and development, and innovation activities of the Institute by involving faculty and students in planning, decision making and results evaluation.

In its structure, the Academic Council has three Committees – Appointment, Promotion and Tenure Committee, Educational Committee, Research and Innovation Committee – which handle activities within the competencies delegated in accordance with the Regulations on the Academic Council<sup>2</sup>.

The composition of the Academic Council and Committees is presented by 39 members – 30 Skoltech faculty and 6 non-Skoltech experts.

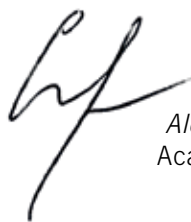
This report overviews main activities and deliverables of the Academic Council and Committees during the period of September

2017 – November 2018. In total, 47 meetings were held.

Among the major contributions are review and recommendations on Skoltech Strategic Action Plan, policy development with regards to research and education activities, faculty hiring and promotion, membership rotation and other procedural issues aimed at ensuring effectiveness of operation.

On behalf of the Chairman, sincere appreciation to the Academic Council members, Committee Chairs and Committee members who have made this year productive by contribution to developing the shared governance system.

In the following months, a new composition of the Academic Council will be appointed. By using this opportunity, let me express gratitude to Dr. Jean Botti, Prof. Alexey Buchachenko, Prof. Boris Fine, Prof. Rupert Gerzer, Prof. Nikolay Kudryavtsev, Prof. Artem Oganov, Prof. Andrey Okounkov, Prof. Pavel Pevzner and Prof. Galina Tsirlina for excellent service during 30 months of the Council operation.



Kind regards,  
*Alexander Safonov*,  
Academic Secretary

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<sup>1</sup> Minutes of the Board of Trustees meeting dated June 23, 2016 No 21 (resolution under agenda item 4).

<sup>2</sup> 3rd Edition of the Regulations on the Academic Council of the Autonomous non-profit Organization for Higher Education "Skolkovo Institute of Science and Technology" (approved by the Academic Council, Minutes of the meeting dated Sep 3, 2018 No 51, resolution under agenda item 3).



# Academic Council



Prof. **Alexander Kuleshov**,  
**Chairman**,  
*President, Skoltech*



Prof. **Rupert Gerzer**, **Deputy Chairman**,  
*Advisor to the President, Skoltech*



Dr. **Alexander Safonov**, **Academic Secretary**, *Vice President for Development, Skoltech*



Prof. **Iskander Akhatov**,  
**Director**,  
*CDMM, Skoltech*



Dr. **Jean Botti**, **CEO**,  
*VoltAero SAS*



Prof. **Alexey Buchachenko**,  
**CEST**,  
*Skoltech*



Prof. **Edward Crawley**,  
**Skoltech Founding President**,  
*MIT*



Dr. **Alexander Fertman**, **Director on Science and Education**,  
*Skolkovo Foundation*



Prof. **Boris Fine**,  
**CPQM**,  
*Skoltech*



Prof. **Clement Fortin**, **Interim Provost**, **Dean of Faculty**,  
*Skoltech*



Prof. **Ildar Gabitov**,  
**CPQM**,  
*Skoltech*



Prof. **Grigoriy Kabatiansky**,  
**Advisor to the President for Science**,  
*Skoltech*



Prof. **Nikolay Kudryavtsev**,  
**Rector**, *Moscow Institute of Physics and Technology*



Prof. **Artem Oganov**,  
**CEST**,  
*Skoltech*



Prof. **Andrei Okounkov**,  
**CAS**,  
*Skoltech*



Prof. **Pavel Pevzner**,  
**University of California**,  
*San Diego*



Prof. **Valery Rubakov**,  
**Moscow State University**,  
*Russian Academy of Sciences*



Prof. **Keith Stevenson**,  
**CEST**, **Dean of Research**,  
*Skoltech*

## MEETINGS HELD

September 14, 2017  
December 8, 2017  
March 15, 2018  
May 28, 2018  
September 3, 2018  
November 28, 2018

## ACTIVITIES / ITEMS REVIEWED

### a. Focus and Governance

- review of proposal for updating Skoltech strategy, covering strategic goals, priorities and a system of KPIs (Sep 2017).
- review of the draft for Strategic Action Plan 2018 – 2020<sup>3</sup>, providing recommendations on “Human Capital” and “Value Generation” tracks, a composition and targets of the Institutional KPIs (Dec, 2017).

<sup>3</sup> Strategic Action Plan 2018 – 2020 approved by the Board of Trustees (Minutes of the Meeting dated Dec 13, 2017 No 27, resolution under agenda item 3).

- review of the framework for Strategic Action Plan update (2019 – 2021); positive resolution to submit the proposed KPIs system for approval of the Board of Trustees (approved by the Board, Sep 2018).
- review of the CREIs Strategic Action Plans for 2019 – 2021 developed to reflect academic excellence and value generation contribution (Sep 2018).
- taking note on Skoltech annual and interim reports on main activities and execution of the KPIs prior to submission to the Board of Trustees.

## **b. CREIs, Shared Facilities**

- approval of the CREIs assessment framework (review criteria, self-assessment procedure, principles of forming international Advisory Groups), taking note on the interim reports.
- review of the Plans for Development.

### **Shared Facilities:**

- Genomics Core Facility,
- Advanced Imaging,
- FabLab and Machine Shop,
- Micro- and Nanofabrication Cleanroom Shared Facility,
- Bio- and Nanophotonics Imaging and Spectroscopy.

### **Laboratories in the structure of the CREIs:**

- Laboratory of Cyber-Physical Systems (CDMM),
- Hybrid Photonics Laboratory (CPQM),
- Laboratory of Mass Spectrometry (CDISE).

## **c. Shared Governance development**

- establishing principles for rotation of the Academic Council membership; setting an approach to conduct faculty nomination to a new composition of the Academic Council; (faculty nominations completed by the CREIs and CEI in Oct, 2018);
- establishing principles for appointing members of the Committees; taking decisions on rotation of the Committees;
- approval of the amended Regulations of the Academic Council with regards to empowerment of competencies to oversee R&D and innovation activities, including translational research, startup incubation and acceleration programs; approval of amendments to procedural issues to improve efficiency of operation;
- approval of the annual reporting provided by the Academic Secretary, Chairs of the Committees.

## **d. Institutional initiatives**

- review and approval of the proposal on pilot Undergraduate Research Opportunity Program<sup>4</sup>.

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<sup>4</sup> The concept implies attracting talented undergraduate students of MIPT specialized in quantum materials to provide them with opportunity of conducting research at Skoltech labs.



# Committees

## APPOINTMENT, PROMOTION AND TENURE COMMITTEE (APTC)

**Competencies:** peer review of candidates to faculty positions, decision making on faculty appointment, promotion and contract renewal cases; nomination of faculty and postdocs to governmental awards and fellowships; recommendation on the policy development with regards to the Institute' academic personnel.

The APTC ensures the highest Institute-wide level of faculty by considering input provided by the Associate Provost, Dean of Faculty and Postdoctoral Affairs, prof. Clement Fortin, on faculty hiring, promotion and contract renewals, as well as policy development.



Prof. **Igor Krichever**,  
*Chair, CAS,*  
*Skoltech*



Prof. **Iskander Akhatov**,  
*CDMM,*  
*Skoltech*



Prof. **Maxim Fedorov**,  
*CDISE,*  
*Skoltech*



Dr. **Alexander Fertman**, *Director*  
*on Science and*  
*Education,*  
*Skolkovo Foundation*



Prof. **Ildar Gabitov**,  
*CPQM,*  
*Skoltech*



Prof. **Yury Kotelevtsev**,  
*CLS, Skoltech*



Prof. **Albert Nasibulin**,  
*CPQM,*  
*Skoltech*



Prof. **Konstantin Severinov**,  
*CLS, Skoltech*



Prof. **Keith Stevenson**,  
*CEST, Dean*  
*of Research,*  
*Skoltech*

## MEETINGS HELD

September 28, 2017 (absentee)	June 7, 2018
October 5, 2017	July 5, 2018
October 13, 2017 (absentee)	September 13, 2018
November 3, 2017	October 4, 2018
December 14, 2017	October 24, 2018 (absentee)
February 8, 2018	November 15, 2018
April 5, 2018	

## ACTIVITIES / ITEMS REVIEWED

### a. Hiring, promotion, contracts renewal

The APTC Expert Groups, presented by 34 Skoltech faculty and 26 non-Skoltech faculty from Russian and international universities and research institutions,<sup>5</sup> worked on initial screening of the submitted applications, reviewed the candidates' qualification and provided hiring recommendations to the APTC. The summary statistics is presented below:

<sup>3</sup> The composition of the Expert Groups is specified in Appendix No 1 to the Report.

### Screening of applications

APTC EXPERT GROUP	APPLICATIONS FOR SENIOR FACULTY POSITIONS	APPLICATIONS MID-CAREER FACULTY POSITIONS	APPLICATIONS FOR JUNIOR FACULTY POSITIONS
Math, Mathematical & Theoretical Physics	–	–	–
Computer Science, IT & Numerical Mathematics	0	15	18
Optics, Electronics & Applied Physics	4	3	–
Material Science & Chemistry	–	–	6
Biology & Life Sciences	7	–	42
Mechanical & Petroleum Engineering	2	4	0
Engineering Systems	2	–	6
<b>Total</b>	<b>15</b>	<b>22</b>	<b>72</b>

### Candidates invited for interview

APTC EXPERT GROUP	CANDIDATES FOR SENIOR FACULTY	CANDIDATES FOR MID-CAREER FACULTY	CANDIDATES FOR JUNIOR FACULTY
Math, Mathematical and Theoretical Physics	1	–	–
Computer Science, IT and Numerical Mathematics	–	1	4
Optics, Electronics and Applied Physics	3	2	
Material Science and Chemistry	1	–	–
Biology and Life Sciences	1	–	4
Mechanical and Petroleum Engineering	4	1	–
Engineering Systems	2	–	2
<b>Total</b>	<b>12</b>	<b>4</b>	<b>10</b>

The APTC reviewed 113 hiring, promotion and contract renewal cases, making 60 positive resolutions. The summary of key statistics is presented below:

	TOTAL CASES REVIEWED	POSITIVE RESOLUTIONS	NEGATIVE RESOLUTIONS
<b>Hiring</b>	73	23	50
<b>Promotion</b>	14	11	3
<b>Contract renewals</b>	26	26	0

## Hiring

	TOTAL CASES REVIEWED	POSITIVE RESOLUTIONS	NEGATIVE RESOLUTIONS
Full Professor	16	12	4
Associate Professor	22	5	17
Assistant Professor	35	6	29

## Promotion

	TOTAL CASES REVIEWED	POSITIVE RESOLUTIONS	NEGATIVE RESOLUTIONS
Full Professor	1	1	0
Associate Professor	5	3	2
Assistant Professor	8	7	1

## Contract renewals

	TOTAL CASES REVIEWED	POSITIVE RESOLUTIONS	NEGATIVE RESOLUTIONS
Full Professor	10	10	0
Associate Professor	4	4	0
Assistant Professor	1	1	0
Professor of Practice	1	1	0
Visiting / Adjunct	8	8	0

## b. Policy development

- establishment of the Faculty Promotion procedure as a part of the Skoltech Policy on Appointment, Promotion and Tenure.



# Educational Committee

**Competencies:** policy development, review and approval of programs portfolio, admission rules and admission plans, nominating Chairs of Final Attestation Commissions, recommendations on partnership programs.

					
Prof. <b>Maxim Fedorov</b> , <i>Chair, CDISE, Skoltech</i>	Prof. <b>Alexei Buchachenko</b> , <i>CEST, Skoltech</i>	Prof. <b>Alexey Cheremisin</b> , <i>CHR, Skoltech</i>	Prof. <b>Michael Chertkov</b> , <i>CEST, Skoltech</i>	Prof. <b>Clement Fortin</b> , <i>Interim Provost, Dean of Faculty, Skoltech</i>	Prof. <b>Mikhail Gelfand</b> , <i>CLS, Skoltech</i>
					
	Prof. <b>Anton Ivanov</b> , <i>SC, Skoltech</i>	Prof. <b>Andrey Marshakov</b> , <i>CAS, Skoltech</i>	Prof. <b>Timofei Zatsepin</b> , <i>CLS, Skoltech</i>	Prof. <b>Andriy Zhugayevych</b> , <i>CEST, Skoltech</i>	Prof. <b>Kelvin Willoughby</b> , <i>CEI, Skoltech</i>

## MEETINGS HELD

November 27, 2017	June 26, 2018
November 29, 2017	July 6, 2018 (absentee)
December 12, 2017	October 2, 2018 (absentee)
February 1, 2018	October 11, 2018
February 22, 2018	October 29, 2018 (absentee)
March 29, 2018	November 22, 2018
June 5, 2018	

The agenda of the meetings was elaborated by the Chair, prof. Maxim Fedorov, in coordination with Associate Provost, Dean of Education, Dr. Anna Derevnina. This allowed to set an efficient review and decision-making process within ongoing educational process. In addition, the Committee meetings were opened for attendance of Skoltech faculty and representatives of Educational programs, which contributed to a comprehensive discussion of agenda items.

## ACTIVITIES / ITEMS REVIEWED

### a. Policies development

- review and approval of Skoltech PhD Defense Policy.
- review of the proposal for developing Policies on professional education; taking note on the Policy on Provision of Paid Educational Services (approved<sup>6</sup> by the Board of Trustees, Sept 2018).

<sup>6</sup> Approval of the principles for providing paid educational services is within the competence of the Board of Trustees according to Skoltech Charter

## **b. Students recruitment**

- review of the Plan for outreach and recruitment campaign 2017 – 2018; taking note on interim and final reporting.
- approval of the Admission Plan 2019 – 2020.

## **c. Educational process**

- approval of MSc and PhD programs portfolio, including amendments of the program titles.
- approval of the academic calendar.
- review and approval of programs for PhD qualifying exams.
- nominating Chairs of the Attestation Committees.
- taking note on the MSc defenses 2018 report, elaboration of changes to be implemented in AY 2018/2019.
- taking note on reporting for students' industry immersion program, Innovation Workshop 2018.

## **d. Educational partnerships**

- defining principals for partnership programs with Russian and international universities (double degree, network form).
- approval of partnership programs with Russian universities (network programs).

## **e. Professional development programs**

- review and approval of the programs “Internet of Things for Managers”, “Fundamentals and Modern Approaches to the Organization of Wireless Access Systems”, “Using Libelium Equipment in Internet of Things Solutions”, “Blockchain technologies”.

# Research and Innovation Committee<sup>7</sup>

**Research and Innovation Committee** reviews research equipment purchases, approves reporting on research agreements, grants, subsidies; provides recommendations on major research initiatives (projects).

The Committee coordinated with the representatives of administration on planning agenda items. Prof. Keith Stevenson in the capacity of Associate Provost, Dean of Research, consolidated purchasing equipment requests before the Committee review, as well as provided input on master research agreements. The Office of Sponsored Research and R&D Contract Office facilitated preparation of cases on reporting within ongoing grants and subsidies.



Prof. **Artem Abakumov**,  
*Chair, CEST, Skoltech*



Prof. **Georgii Bazykin**,  
*CLS, Skoltech*



Prof. **Aldo Bischi**,  
*CEST, Skoltech*



Prof. **Anton Ivanov**,  
*SC, Skoltech*



Dr. **Dmitry Katalevsky**,  
*Director, Department for Industrial Cooperation and Public Programs*



Prof. **Yury Kotelevtsev**,  
*CLS, Skoltech*



Prof. **Dmitry Lakontsev**,  
*CDISE, Skoltech*



Prof. **Andrei Osiptsov**,  
*CHR, Skoltech*



Dr. **Nikolay Suetin**, *Vice President for Science and Education, Skolkovo Foundation*



Prof. **Ighor Uzhinsky**,  
*CDMM, Skoltech*



Prof. **Arkadi Shipulin**,  
*CPQM, Skoltech*



Dr. **Alexander Fertman**, *Director on Science and Education, Skolkovo Foundation*

## MEETINGS HELD

September 28, 2017 (absentee)	May 21, 2018 (absentee)
October 12, 2017	June 21, 2018 (absentee)
November 9, 2017	September 13, 2018
December 14, 2017	September 21, 2018 (absentee)
December 25, 2017 (absentee)	October 4, 2018 (absentee)
January 15, 2018	October 19, 2018 (absentee)
February 8, 2018	November 1, 2018
March 29, 2018	

<sup>7</sup> Committee on Research Projects and Programs before September 3rd, 2018.

## ACTIVITIES / ITEMS REVIEWED

### a. Requests for research equipment purchase

- establishing a procedure to review research equipment requests, including requests initiated by the Shared Facilities Office and Centers of Collective Use.
- screening and recommendations on purchase equipment requests (28 in total).

### b. Research contracts (MRAs, grants, subsidies)

- review of the plans and interim reporting within master research agreements (9 agreements).
- approval of interim and final reporting on ongoing grants / subsidies projects (17 reports).

### c. Research initiatives (projects)

- positive resolution on the plan to establish Skoltech joint research center with Dokuchaev Soil Science Institute (CDISE).
- positive resolution on establishment of Skoltech “Multiphase Flow & Computational Mechanics Laboratory” jointly with «Gazpromneft Science and Technology Centre» (CHR).



# Appendix. APTC Expert Groups

## Math, Mathematical and Theoretical Physics

**Chair**                    **Prof. Sergei Lando, CAS**

**Members:**            Prof. **Alexander Braverman, CAS**  
Prof. **Alexander Gaifullin, CAS**  
Prof. **Andrei Marshakov, CAS**  
Prof. **Grigorii Olshanskii, CAS**

## Computer Science, IT and Numerical Mathematics

**Chair**                    **Prof. Maxim Fedorov, CDISE**

**Members:**            Prof. **Luca Daniel**, *Professor of Electrical Engineering & Computer Science, Massachusetts Institute of Technology*  
**Vyacheslav Ilyin**, *Head of Department of Mathematical Modelling and Information Technologies, National Research Centre “Kurchatov Institute”; Head of Chair of Informatics and Computing Networks, Department of Nano-, Bio, Information Technology and Cognitive Science, MIPT; Leading research scientist, Lomonosov Moscow State University*  
**Grigory Kabatyansky**, *Advisor of the President for Science*  
**Andrey Osiptsov**, *Assistant Professor, CHR*  
**Igor Petrov**, *Head of Chair of Informatics, Department of Control and Applied Mathematics, MIPT; Corresponding member of the Russian Academy of Sciences*  
Prof. **Martin Rinard**, *Department of Electrical Engineering and Computer Science, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology*  
**Vasily Velikhov**, *Head of Supercomputing Centre and Deputy Director in Information Technologies, National Research Centre “Kurchatov Institute”*

## Optics, Electronics and Applied Physics

**Chair**                    **Mikhail Skvortsov, Associate Professor, CPQM**

**Members:**            Prof. **Nikolay Gippius, CPQM**  
Prof. **Vladimir Drachev, CPQM**  
**Nicholas Fang**, *Associate Professor, Nanophotonics and 3D Nanomanufacturing Laboratory, Massachusetts Institute of Technology*  
**Sergei Kobtsev**, *Associate Professor, Novosibirsk State University*  
**Franco Kueppers**, *Visiting Professor, CPQM*  
Prof. **Igor Kukushkin**, *Institute of Solid State Physics, RAS*  
Prof. **Pavlos Lagoudakis, CPQM**  
**Vladimir Lebedev**, *Director of L.D. Landau Institute for Theoretical Physics of Russian Academy of Sciences*  
**Vladimir Manucharyan**, *Assistant Professor, Physical Sciences Complex, University of Maryland*

## Material Science and Chemistry

**Chair** Prof. Artem Abakumov, CEST

**Members:** Prof. Evgeny Antipov, Department of Electrochemistry, Moscow State University  
Prof. Elena Boldyreva, Institute of Solid State Chemistry and Mechanochemistry of the Siberian Branch of the Russian Academy of Sciences  
Prof. Albert Nasibulin, CPQM  
Prof. Elena Savinova, University of Strasbourg  
Alexander Shapeev, Assistant Professor, CDISE  
Prof. Sergei Tretiak, CEST  
Alexander Tsirlin, Young Research Group Leader, University of Augsburg

## Biology and Life Sciences

**Chair** Prof. Mikhail Gelfand, CLS

**Members:** Prof. Olga Dontsova, CLS  
Prof. Dmitry Frishman, Technical University of Munich  
Leonid Mirny, Professor of Institute for Medical Engineering and Science and Physics, Massachusetts Institute of Technology  
Prof. Andrei Osterman, Sanford-Burnham Medical Research Institute, Infectious and Inflammatory Disease Center  
Igor Rogozin, National Center for Biotechnology Information, NIH  
Prof. Konstantin Severinov, CLS

## Mechanical and Petroleum Engineering

**Chair** Prof. Iskander Akhatov, CDMM

**Co-Chair** Prof. Mikhail Spasennykh, CHR

**Members:** Prof. Fardad Azarmi  
Marwan Charara, Associate Professor, CHR  
Oleg Kataev, Industrial Partner, LUKOIL-Engineering  
Prof. Stepan Lomov, Composite Materials Group, KU Leuven  
Prof. Raj Mehta, University of Calgary  
Prof. Artyom Myasnikov, CHR  
Robert Nigmatulin, Adjunct Professor, CDMM  
Prof. Yury Popov, CHR  
Prof. Klaus Regenauer-Lieb, Head of School UNSW Petroleum Engineering, University of New South Wales  
Andrei Ushakov, Industrial Partner, CEO of ApATeCH – Applied Advanced Technologies  
Prof. Ighor Uzhinsky, CDMM  
Prof. Oleg Vasilyev

## Engineering Systems

**Chair** Clement Fortin, Professor of the Practice, Interim Provost, Dean of Faculty

**Members:** Alessandro Aliakbargolkar, Associate Professor, SC  
Prof. Oleg Alifanov, Moscow Aviation Institute  
Prof. Janusz Bialek, CEST  
Anton Ivanov, Associate Professor, SC  
Marta Mallinas, Department of Engineering Cybernetics, Faculty of Information Technology and Electrical Engineering, Norwegian University of Science and Technology  
Prof. Ighor Uzhinsky, CDMM



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