

## **Protocol of ITG Energy meeting**

June 07, 2018

2018 Spring online meeting of BRICS NU International Thematic Group on Energy was held on WebEx internet platform on June 10, 2018. The meeting was arranged by National Research University “Moscow Power Engineering Institute”, Russia. The meeting was chaired by Prof. Igor. Zhelbakov. The following universities took part in the ITG Energy meeting by their representatives:

National Research University “Moscow Power Engineering Institute”, Russia

Peoples Friendship University of Russia, Ecological Faculty, Russia

National University of Science and Technology “MISIS”, Russia

North-West University, South Africa

Others sent their comments off-line during preparatory work.

1. In preparation for the 3<sup>rd</sup> Conference of BRICS Network University (July 5-7, 2018 at Cape Town, South Africa) the general information about International Thematic Group on Energy was updated together with the actual list of coordinators from partner universities and report on previous activities according to the roadmaps 2016 and 2017. The new draft roadmap for the period 2018-2019 was discussed. It should be adopted at onsite meeting of ITG during 3<sup>rd</sup> Conference.

### **International Thematic Group “Energy”**

ITG coordinates collaboration of the BRICS NU university participants in education, research and innovation in the framework of the individual knowledge priority field of energy. It approves of the educational programs and projects, proposed by the participants of the BRICS NU in the field of energy; elaborates the common approaches towards the content and structures of the BRICS NU educational programs as well as towards QA and credits recognition by the participants of the BRICS NU in the field of energy; analyses academic mobility among BRICS NU participants in a given field; considers the main problems of the BRICS NU and makes proposals to NCCs and IGB on the possible ways of solving the problems; makes proposals to the NCCs on the principles and mechanisms of the students mobility among the BRICS NU university participants; considers other issues pertaining to the content and the forms of the educational, research and innovation collaboration of the BRICS NU university participants in the field of energy.

Members of ITG “Energy” are as follows:

- Federal University of Santa Catarina – UFSC, Brazil
- Federal University of Viçosa – UFV, Brazil
- National Research University “Moscow Power Engineering Institute”, Russia
- National University of Science and Technology “MISIS”, Russia
- Peoples' Friendship University of Russia, Russia
- Moscow Institute of Physics and Technology, Russia
- Indian Institute of Technology Bombay, India

- Banaras Hindu University Varanasi, India
- Hohai University, China
- North China University of Water Resources and Electric Power, China
- Hunan University, China
- North West University, South Africa
- University of Limpopo, South Africa

#### Main fields of activities

- Electrical and heat power engineering
- Energy efficiency, power saving, green technologies
- Smart grids, distributed generation and global energy interconnections
- Renewable, autonomous energetics: technology, equipment, systems
- Nanomaterials and Metamaterials for energetics
- Nuclear power engineering and nuclear safety
- Energy economics, energy markets, energy policy and security
- Petroleum engineering, clean coal and gas to liquid fuel technologies
- Neutron/Synchrotron infrastructure: materials characterization
- Effective Waste Management and waste-to-energy projects

#### Subgroups on the following research fields

- Hydro Energy
- Wind Energy
- Solar Energy
- Thermal Energy
- Biomass Energy

ITG “Energy” coordinator – Prof. Igor N. Zhelbakov, National Research University “Moscow Power Engineering Institute”, Director of MPEI Institute of International Educational Programs, phone +7 (495) 362-7214, email: mpei.energy@mail.ru

#### University coordinators of the International Thematic Group “Energy”

Country	University	Coordinator name	Position	e-mail
Brazil	Federal University of Santa Catarina - UFSC	Amir Antonio Martins Oliveira	Associate Professor	amir.oliveira@gmail.com
Brazil	Federal University of Viçosa – UFV	Delly Oliveira Filho	Professor	delly@ufv.br
Russia	National Research University “Moscow Power Engineering Institute”	Igor N. Zhelbakov	Director of MPEI Institute of International Educational Programs	mpei.energy@mail.ru
Russia	National University of Science and Technology “MISIS”	Dmitry A. Podgorny	Head of the Department	d_pod@mail.ru
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Russia	Moscow Institute	Irina G.	Deputy Director	obukhova.ig@mipt.ru

	of Physics and Technology	Obukhova	Center of International Education	
India	Indian Institute of Technology Bombay	Dayadeep Singh Monder	As. Professor	dmonder@iitb.ac.in
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South Africa	North West University	Jan van Ravenswaay	NWU Energy Theme Leader	Jan.VanRavenswaay@nwu.ac.za
South Africa	University of Limpopo	Phuti Ngoepe	Professor	Phuti.Ngoepe@ul.ac.za

### ITG “Energy” report 2016-2017

Date	Place	Milestone	Participants	Detailed description
April 2016	National Research University MPEI	Academic colloquium “Rodney Allam Cycle and pilot power plant based on it”	All members of ITG Energy	On-line broadcasting of academic colloquium “Rodney Allam Cycle and pilot power plant based on it”.
May 2016	National Research University MPEI	Reference book “Higher Education Systems in BRICS countries”	MPEI	Reference book “Higher Education Systems in BRICS countries” (in Russian)
July 2016	National Research University MPEI	Internet platform for ITG “Energy” development	MPEI	Internet platform for information exchange among partner universities of ITG Energy <a href="http://itgenergy.mpei.ru">http://itgenergy.mpei.ru</a>
July 2016	Internet	Filling out internet platform with participants data	All members of ITG Energy	Partner universities discuss internet platform, necessary information to be published and road map for the nearest year
July 2016	National University of Science and Research “MISIS”	Moscow Mini Maker Faire	All members of ITG Energy	<a href="https://makerfairemoscow.com/about-2/">https://makerfairemoscow.com/about-2/</a> Students and researchers from partner universities present their works at the forum
August-September 2016	National University of Science and Research “MISIS”	Summer Schools “Materials Science”	All members of ITG Energy	<a href="http://en.misis.ru/applicants/short-term/summer-schools/materials/">http://en.misis.ru/applicants/short-term/summer-schools/materials/</a> Students from partner universities take part in the summer school
September	Internet	Online Meeting	All members	Roadmap approval

2016		of ITG Energy	of ITG Energy	Actualization of information about partner universities
October 2016	National Research University MPEI	International young research conference "Energy saving: theory and practice"	All members of ITG Energy	Students from partner universities present their papers at the conference
October 2016	National University of Science and Research "MISIS"	Materials Education Symposium (CES EduPack)	All members of ITG Energy	Students and researchers from partner universities present their papers at the Symposium
November 2016	Moscow Institute of Physics and Technology	Annual International scientific conference	All members of ITG Energy	Students and researchers from partner universities present their papers at the conference
November 2016	Peoples' Friendship University of Russia, Ecological Faculty	International scientific conference PEOPLE. SCIENCE. INNOVATIONS IN THE NEW MILLENNIUM №2	All members of ITG Energy	Students and researchers from partner universities present their papers at the conference
December 2016	National University of Science and Research "MISIS"	Annual international conference "Energy-efficient materials and technologies" (Energy-Related Materials (ICERM-2016))	All members of ITG Energy	Students and researchers from partner universities present their papers at the conference
February 2017	National Research University MPEI	International student's conference "Radio Electronics, Electrical and Power Engineering"	All members of ITG Energy	Students from partner universities present their papers at the conference
June 2017	National Research University MPEI	Visit of Federal University of Viçosa delegation to MPEI	UFV and MPEI	Acquaintance with MPEI, visits to MPEI labs and departments, discussions with professors and international administration. Elaboration of Agreement on Cooperation (signed in August).
July 2017	North China University of Water Resources and Electric Power, Zhengzhou, China	Meeting of ITG Energy during 2 <sup>nd</sup> general conference of BRICS NU	All members of ITG Energy	Activities report, exchange of ideas, projects presentation, subgroup creation, discussion of roadmap
July 2017	National University of Science and Research "MISIS"	Summer School "Materials and Technology"	All members of ITG Energy	<a href="http://en.misis.ru/applicants/short-term/summer-schools/materials/">http://en.misis.ru/applicants/short-term/summer-schools/materials/</a> Students from partner universities take part in the summer school
September	Internet	Coordination of	All members	Coordination of ITG roadmap and

2017		ITG roadmap 2017/18	of ITG Energy	approval of Roadmap 2017/18
September 2017	National University of Science and Research "MISIS"	Materials Education Symposium (CES EduPack)	All members of ITG Energy	Students and researchers from partner universities present their papers at the Symposium
November 2017	Internet	2017 Fall Online Meeting of ITG Energy	All members of ITG Energy	Roadmap approval Approval of Master programs for joint training Sharing actual information on student's exchange possibilities
October 2017	National Research University MPEI	International young research conference "Energy saving: theory and practice"	All members of ITG Energy	Students from partner universities present their papers at the conference

2. Some ideas concerning BRICS Network University development was formulated for further discussion at onsite meeting in June.

#### 2.1. What are the aims of BRICS NU?

- academic exchange between partner universities including both student and staff mobility
- joint educational programs (delivered in English) with 2 diplomas or diploma + certificate
- development of joint research projects (or joint application for appropriate grants)
- double supervising of PhD-students in the framework of joint research
- others

2.2. What kind of support is vitally necessary for student's exchange within network university?

- grant for student's outbound mobility (covering travel expenses and living expenses)
- grant for student's inbound mobility (covering tuition and accommodation fee)
- staff mobility grants for establishing personal contacts between partner universities.
- others

#### 2.3. What should be a milestone in our new roadmap?

- start of Master program (in English) in partner university (which could be used for student's exchange)
- granting financial support for inbound/outbound students of BRICS NU
- arrival / departure of exchange students (exchange with partner universities)
- granting financial support for staff exchange
- arrival / departure of staff (exchanging with partner universities)
- others

#### 2.4. What should be measurable results according to these milestones?

- number of Master programs
- number of exchange grants allocated
- number of exchange students/staff from partner universities arrived in each university
- others

3. In order to make our onsite meeting in Cape Town more fruitful each university is recommended to prepare a presentation about existing student's exchange support in corresponding university and country in general and present existing Master courses, which could be interested for exchange students of the "Energy" field of study.

4. It is recommended to all ITG Energy members who will attend the 3<sup>rd</sup> Conference in Cape Town to book rooms at Spire Hotel in order to facilitate communication and discussion within ITG during the conference.

Head of the meeting

Prof. Igor Zhelbakov

National Research University "Moscow Power Engineering Institute", Russia