



Working Group on Photonics

The 1st WG Photonics Meeting Statement

Moscow region, the Russian Federation

March 2, 2018

1. The 1st Meeting of the Working Group on Photonics (hereafter - WG Photonics) was held in Russia in accordance with the BRICS Jaipur Declaration signed at the 5th BRICS Science, Technology and Innovation Ministerial Meeting on July, 18 2017 and the revised BRICS Work Plan 2015-2018 as well as the Action Plan 2017-2020.
2. A copy of the adopted agenda of the Meeting is placed at Annex-I.
3. The main outcomes / recommendations of the 1st Meeting of WG Photonics to be reported to the BRICS STI Senior Officials Meeting (SOM) are as follows.

3.1. The priority areas of cooperation for the initial phase of BRICS Cooperation in Photonics would be as below:

- (i) Integrated optics and radio photonics,
- (ii) High speed optical communication systems,
- (iii) Photonics applications in bio-medicine,

(iv) Photonics for agriculture and food industry.

3.2. The Photonics WG discussed and finalized the draft text of its Terms of Reference (ToR). A copy of the finalized version of the draft ToR are placed at Annex-II of this document for final adoption of the ToR by BRICS STI SOM and BRICS STI Ministers.

3.3. WG Photonics has considered the results of 1st BRICS call 2016/2017 and current developments of the 2nd BRICS Call.

3.3.1. The WG Photonics has stressed the importance to have the topics in the field of Photonics revised and updated for the 3rd BRICS Call for proposals, which is expected to be announced in 2018. It was agreed that WG Photonics focal points will collect suggestions on revision of joint call's topics by the 15th of April, 2018. Russia and India as coordinating countries will incorporate together proposals to be submitted to the WG on BRICS STI Funding agencies by June 01, 2018.

3.3.2. The WG Photonics will suggest to Senior officials, given the success of the 1st BRICS Joint Call, to increase resources allocated to future joint calls launched under BRICS STI Framework Programme, especially in the field of Photonics.

3.3.3. The WG Photonics welcomes the initiative to create BRICS VIP (Virtual Institute of Photonics), and consider meanwhile establishing the BRICS network at the level of inter-institute initiatives. The Russian proposal draft of the virtual institute is attached in the Annex-III. The concept for the virtual institute will further be discussed within each member country and feedback will be given before April 15.

- 3.4. The WG Photonics stresses the importance of involving industry to joint STI projects. It was agreed that the focal points will coordinate and induce this dialogue including sharing experience, identifying potential industry partners, including startups and spinoffs, as well as mechanisms for collaboration.
- 3.5. The participants of the Meeting encourage the authorities of BRICS countries to harmonize national standards and regulations in the field of Photonics in order to expand the possibilities for joint STI projects and fully exploit opportunities of markets, while respecting privacy concerns and national security interests of the BRICS countries.
- 3.6. The topic “Packaging of active and passive photonics devices” will be considered as a priority taking into account feasible commercial opportunities of this activity.
- 3.7. The topic “Digital signal processing algorithms and hardware” underlines an importance of the joint development of the hardware and its respective digital signal processing. The topic will be further elaborated and taken as a priority one.
- 3.8. The topic “Numerical methods in radio photonics and new materials for radio photonics” takes into consideration the necessity of elaboration of special numerical methods required by radio photonics. The topic is accepted as a priority one for the future collaborative projects.
- 3.9. The topic “Quantum photonic technologies” is of the great importance for national security and has to be included into the list for joint projects and priorities, especially taking into account the solid background and the competences in BRICS countries.
- 3.10. The WG welcomes the initiation of the joint programme in photonics for agriculture proposed by Russia and India. The program would include multilateral collaboration in the field of advance spectroscopy, remote sensing, big data, artificial intelligence, and precision agriculture. The results of this activity will be early

detection of plant diseases, prediction and increase of land productivity, decrease of usage of fertilizers, control of food processing and storage.

- 3.11. During the Meeting, Russia and India have presented their National Programmes in area of Photonics and have agreed to coordinate further joint activities.
 - 3.12. During the Meeting, South Africa has presented their vision and plans in area of Photonics, looks forward to share the respective technologies at bilateral and multilateral levels.
 - 3.13. During the Meeting, HUAWEI, a Chinese telecom company presented their vision for mutually beneficial cooperation between HUAWEI and other entities in the frame of bilateral cooperation and cooperation between BRICS countries.
4. The venue and dates for organizing 2nd Meeting of Photonics WG will be decided through consultations among BRICS countries