XV

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HSE UNIVERSITY, MOSCOW, RUSSIA

МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ
ФОРСАЙТ И НАУЧНО-ТЕХНИЧЕСКАЯ И ИННОВАЦИОННАЯ ПОЛИТИКА

12–14 ноября 2025

НИУ ВШЭ, МОСКВА, РОССИЯ

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NATIONAL CENTRE FOR SOCIO-ECONOMIC AND SCIENCE, TECHNOLOGY FORESIGHT

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S&T Collaboration between BRICS Countries: Bibliometric Analysis

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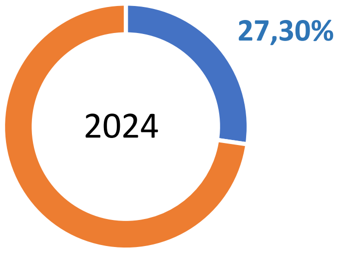
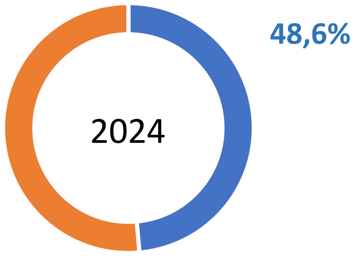
Scientific capacity of BRICS* countries exceeds their economic potential



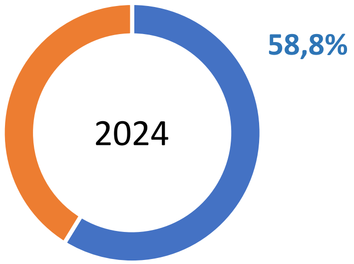
Global GDP

but



Scientific Publications Indexed in Scopus

and



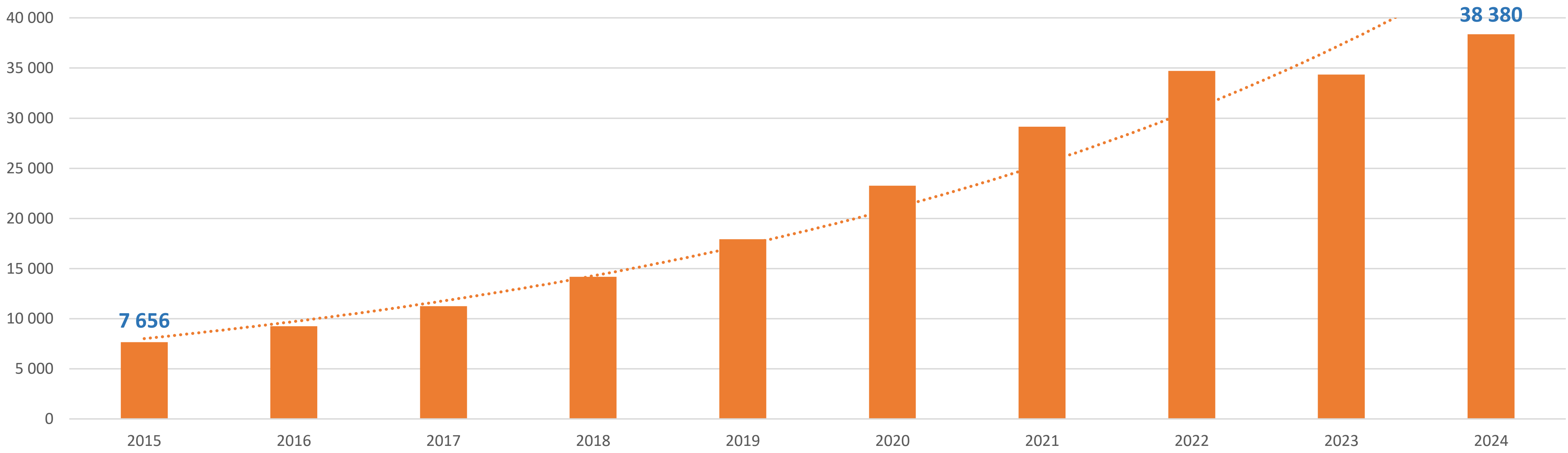
Citation count

*BRICS countries in this report are: Brazil, China, Egypt, Ethiopia, India, Indonesia, Iran, Russian Federation, South Africa, United Arab Emirates

Source: IMF, Scopus

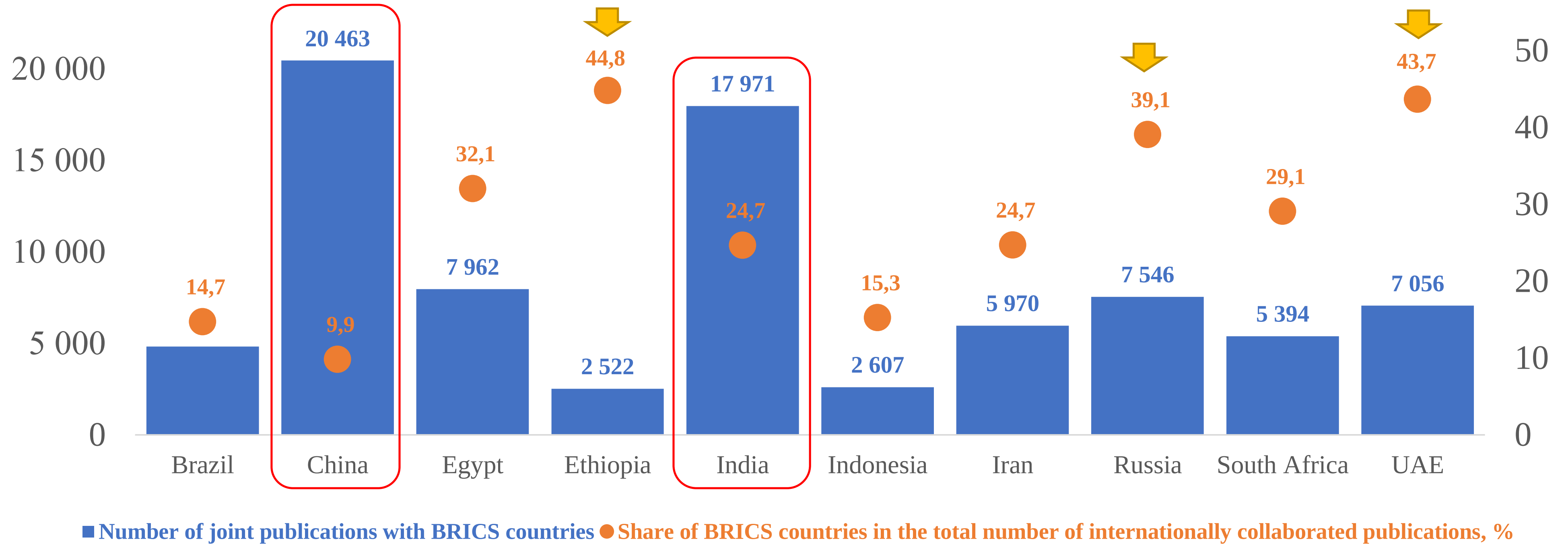
Intra-BRICS collaboration is growing faster than with other countries in the world

- 2 times growth in BRICS-world collaboration: increase by 126% (2024-2015)
- 5 times growth in intra-BRICS cooperation: an increase of 401% (2024 - 2015)



Source: Scopus

China and India contribute the most, while Ethiopia, the UAE, and Russia have the highest proportion of publications in cooperation with BRICS countries



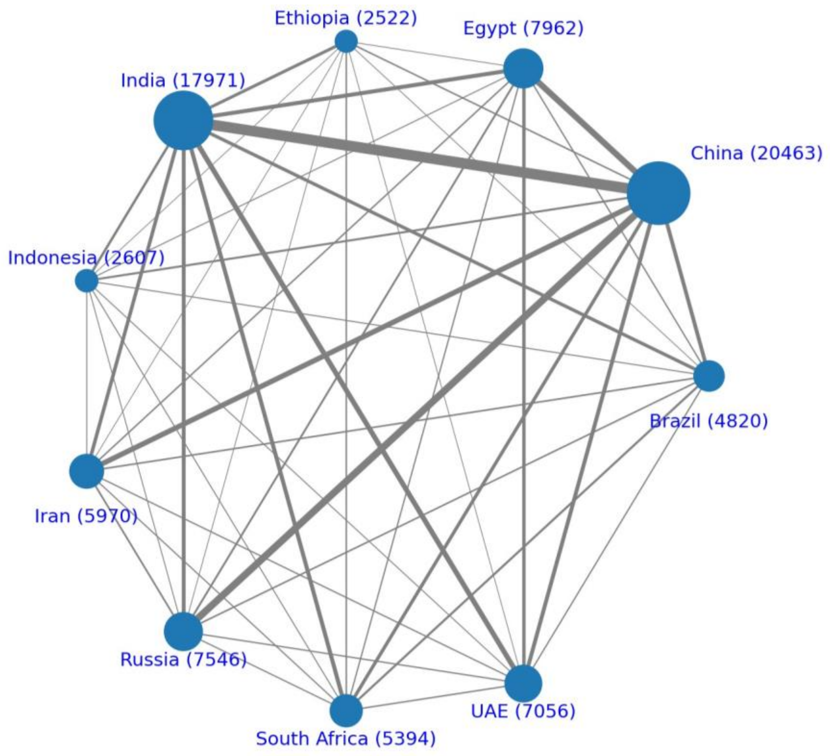
Source: Scopus

China-India and China-Russia are the leading pairs of countries in terms of the number of publications

Top-10 collaborating pares of countries inside BRICS

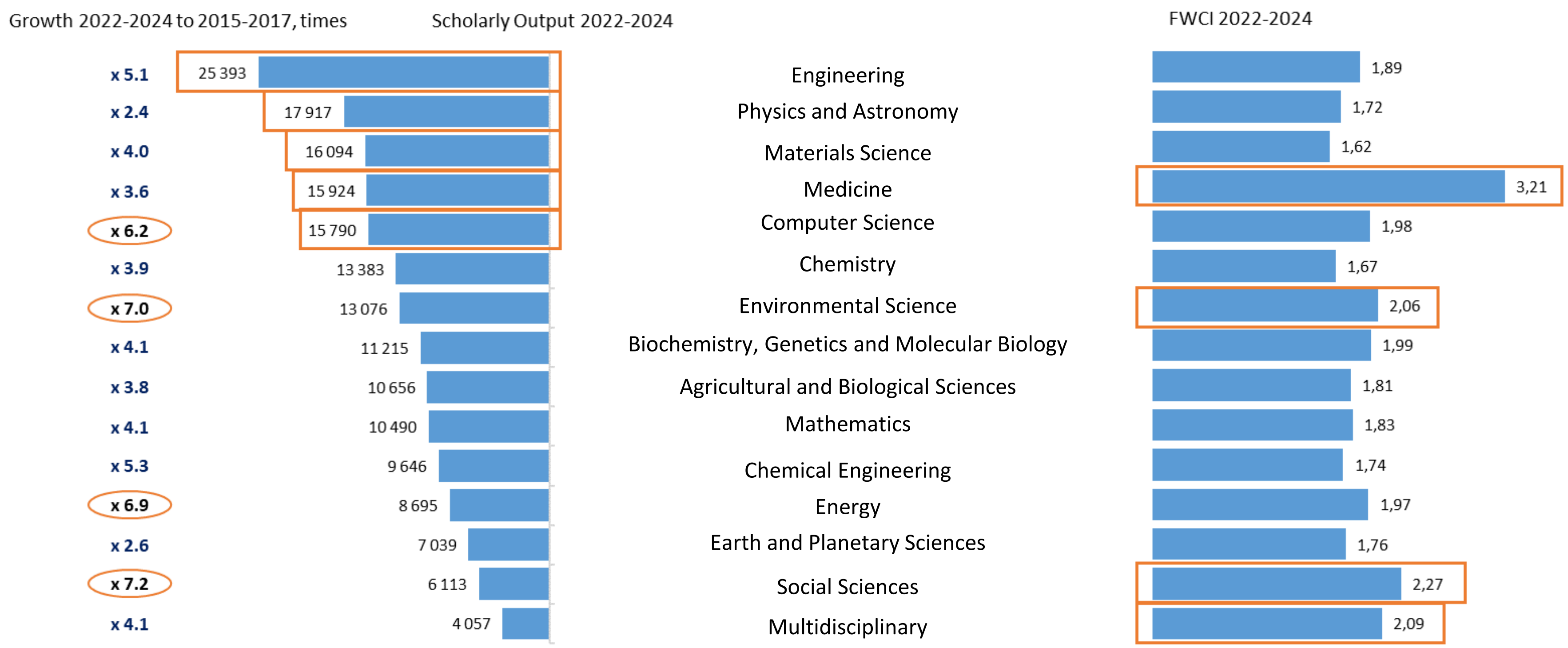
Country 1	Country 2	# of publications, 2024
China	India	6 454
China	Russian Federation	4 157
China	Egypt	3 513
China	Iran	2 947
India	United Arab Emirates	2 841
India	South Africa	2 196
India	Egypt	2 155
China	United Arab Emirates	2 105
India	Russian Federation	2 046
China	Brazil	2 033

Source: Scopus



Source: ChatGPT

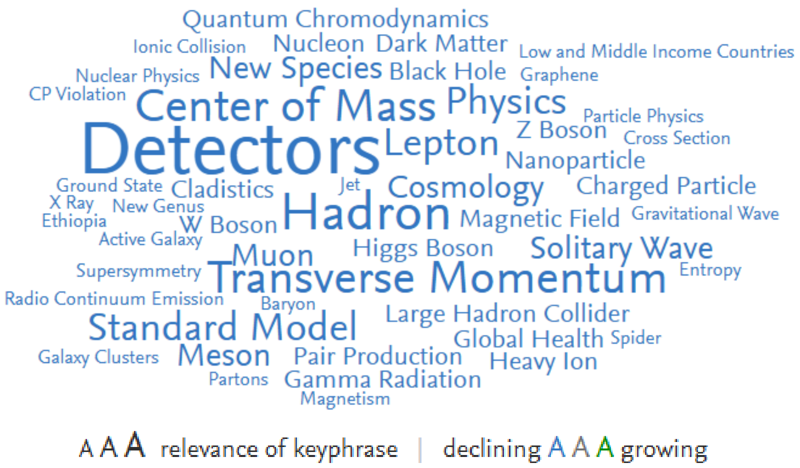
Collaboration between BRICS countries: the areas to grow together



Engineering is the largest subject area, while Computer Science is both large and fast growing, and Medicine is both large and high-quality

Collaboration between BRICS countries: a shift in research trends

2015-2017

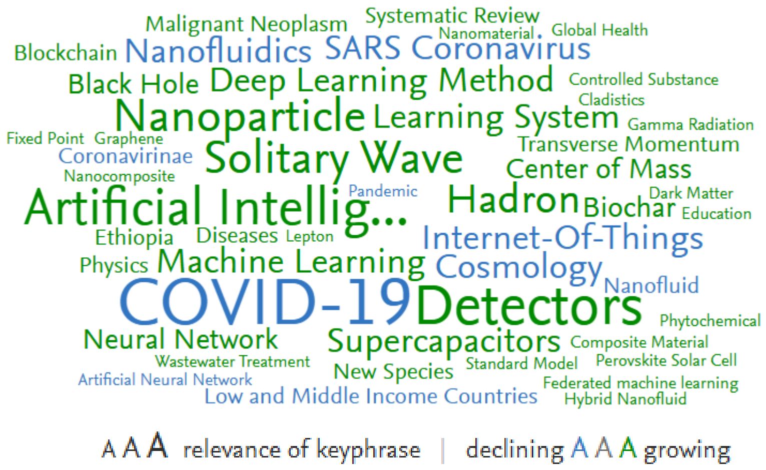


Source: SciVal

The research focus of BRICS countries has evolved from fundamental physical experiments and theoretical physics to an interdisciplinary approach encompassing studies in healthcare, digital technologies, artificial intelligence, materials science, and sustainable development

Summarization: GigaChat

2022-2024



Source: SciVal

Collaboration between BRICS countries: key topic clusters (# of pub.)

2022-2024

1. Interconnections of Economic Growth and Carbon Emissions
2. Hybrid Nanofluids in Thermal Management Applications (13,5%*)
3. Particle Interactions and Decay Mechanisms (37,8%)
4. Nonlinear Solitary Wave Solutions
5. Metaheuristic Algorithms for Optimization Challenges
6. Innovative Electrocatalysts for Hydrogen and Oxygen Production
7. Antimicrobial and Anticancer Applications of Nanoparticles
8. Innovative Materials for Radiation Shielding Applications (12,9%)
9. Thermal Dynamics of Nanofluids in Engineering Applications
10. Natural Fiber Reinforced Composites for Sustainable Applications
11. Microplastics as Environmental Pollutants and Risks
12. Fractional Order Models in Disease Dynamics (10,4%)
13. Nanoparticles in Enhancing Agricultural Productivity
14. Integrated Energy Systems for Hydrogen Production (20,8%)
15. High-Performance Materials for Energy Storage Solutions
16. Mechanical Properties of Aluminum Matrix Composites
17. MXenes in Energy Storage and Sensing Applications
18. Graphitic Carbon Nitride in Photocatalytic Applications
19. Federated Learning Systems for Data Privacy Enhancement
20. Intelligent Reflecting Surfaces in Wireless Communication

*Share of IntraBRICS joint publications in the global number of publications 2022-2024

Source: SciVal

Key collaborating organizations in BRICS
Thank you!

China

Chinese Academy of Sciences
University of Chinese Academy of Sciences
Peking University
Shanghai Jiao Tong University
Zhejiang University
Tsinghua University
University of Science and Technology of China
Sun Yat-Sen University
Fudan University
Shandong University
Nanjing University
CAS - Institute of High Energy Physics
Jiangsu University
Wuhan University
Xi'an Jiaotong University
Harbin Institute of Technology
Sichuan University

South Africa

University of Johannesburg
University of Cape Town
University of the Witwatersrand
University of KwaZulu-Natal
University of Pretoria
Stellenbosch University
University of South Africa
North West University
University of The Free State
University of the Western Cape
Durban University of Technology

India

Saveetha Institute of Medical and Technical Sciences (Deemed to be University)
Jawaharlal Nehru Technological University Hyderabad
Lovely Professional University
Vellore Institute of Technology
Chandigarh University
SRM Institute of Science and Technology
GLA University
Manipal Academy of Higher Education
Indian Institute of Technology Madras

Ethiopia

Addis Ababa University
Adama Science and Technology University
Hawassa University
Jimma University Ethiopia
Addis Ababa Science and Technology University
Bahar Dar University
Arba Minch University
Wollo University
Wollega University
Gondar University
Haramaya University
Ambo University
Kebri Dehar University

Indonesia

Universitas Airlangga
National Research and Innovation Agency Republic of Indonesia
University of Indonesia
Padjadjaran University
Gadjah Mada University
Universitas Sumatera Utara
Brawijaya University
State University of Padang
Universitas Hasanuddin
Bandung Institute of Technology
Universitas Diponegoro
Universitas Udayana

Iran

Islamic Azad University
University of Tehran
Tehran University of Medical Sciences
Shahid Beheshti University of Medical Sciences
Sharif University of Technology
Tarbiat Modarres University
Amirkabir University of Technology
Iran University of Medical Sciences
University of Tabriz
Mashhad University of Medical Sciences
Isfahan University of Technology

United Arab Emirates

University of Sharjah
United Arab Emirates University
Khalifa University of Science and Technology
Ajman University
Mohamed Bin Zayed University of Artificial Intelligence
NYU Abu Dhabi
Al Ain University of Science and Technology
Abu Dhabi University
Zayed University
Gulf Medical University
Technology Innovation Institute
American University of Sharjah
Higher Colleges of Technology
Ras Al Khaima Medical and Health Sciences University
Abu Dhabi Health Services Company

Source: SciVal, 2022-2024

Brazil

Universidade de São Paulo
Universidade Estadual de Campinas
Universidade Federal do Rio de Janeiro
Universidade Federal do Rio Grande do Sul
Universidade Estadual Paulista Júlio de Mesquita Filho
Universidade do Estado do Rio de Janeiro
Universidade Federal de Minas Gerais
Centro Brasileiro de Pesquisas Físicas
Universidade Federal do ABC
Universidade Federal de São Paulo
Universidade de Brasília
Universidade Federal de Juiz de Fora
Universidade Federal de Santa Catarina

Egypt

Cairo University
Mansoura University
Al-Azhar University
Alexandria University
Ain Shams University
Zagazig University
Tanta University
Assiut University
Menoufia University
National Research Center
Benha University
Future University in Egypt
Minia University

Russia

Russian Academy of Sciences
Ural Federal University
Lomonosov Moscow State University
People's Friendship University of Russia
Sechenov First Moscow State Medical University
South Ural State University
St. Petersburg State University
Moscow Institute of Physics and Technology
Joint Institute for Nuclear Research
RAS - Siberian Branch
Peter the Great St. Petersburg Polytechnic University
Higher School of Economics

Thank you!

Doctor Sergey A. Revyakin

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