

Forum ‘USPEKHI-2021’: Climate change and global energy issues (Joint Scientific session of the Physical Sciences Division, Chemistry and Materials Sciences Division, Division of Earth Sciences and Division of Energetics, Machinery, Mechanical Engineering and Control Processes of the Russian Academy of Sciences, January 19, 2021)

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19 January 2021, under the auspices of the Presidium of the Russian Academy of Sciences (RAS), a Joint Scientific session of the Physical Sciences Division, Chemistry and Materials Sciences Division, Division of Earth Sciences and Division of Energetics, Machinery, Mechanical Engineering and Control Processes of the Russian Academy of Sciences — «Forum ‘USPEKHI-2021’: Climate change and global energy issues» took place.

Joint Scientific session was held in the videoconference mode (for the Announcement and the full record of the Forum see <https://ufn.ru/ru/articles/2021/1/a/>).

The participants of the videoconference were addressed by the Forum Co-Chairs:

Sergeev A M (Co-chair, President of the Russian Academy of Sciences, Moscow, Russian Federation) “Welcoming the participants of the Forum ‘USPEKHI-2021’”;

Tajima T (Co-chair, Norman Rostoker Chair Professor, University of California, Irvine, USA) “Opening speech”;

(1) **Semiletov I P** (Head of the Arctic Research Laboratory, Pacific Oceanological Institute, Far Eastern Branch of the Russian Academy of Sciences, Russian Federation) “Coupling between climate change and permafrost thawing in the Arctic land-shelf system: current understanding”;

(2) **Drobinski P** (Research Director, Ecole Polytechnique of France, France) “Integrating climate variability and change in renewable energy planning”;

(3) **Rignot E** (Donald Bren Professor, Earth System Science, University of California, Irvine, USA) “Impact of global warming on sea level and solutions”;

(4) **Ismagilov Z R** (Scientific Director, Federal Research Center for Coal and Coal Chemistry, Siberian Branch of the Russian Academy of Sciences, Russian Federation) “Local and Global Climate change impact of coal mining, storage, transportation, processing and power generation”;

(5) **Mackey K** (Assistant Professor of Earth System Science, University of California, Irvine, USA) “Our Changing Oceans: exploring causes, consequences, and solutions”;

(6) **Li N** (Managing Director, Transform Insight Partners, USA) “New paradigm for civilian nuclear energy — perspectives from energy hierarchy and fundamental safety”;

(7) **Kalmykov S N** (Acting Dean of the Chemistry Department, Moscow State University, Russian Federation) “Novel strategy for nuclear energy generation”;

(8) **Binderbauer M** (Tri Alpha Enterprises, CEO, USA) “Fusion energy solutions”;

(9) **Weeks A** (Director General, The Extreme Light Infrastructure, Belgium) “Sustainable research and operations at the extreme light infrastructure: meeting the challenges of the 21st century at Europe’s large-scale laser facility”;

(10) **Tajima T** (Norman Rostoker Chair Professor, University of California Irvine, USA) “East meets West again in order to tackle the global energy crises”.

Published below in this Special Issue (*Phys. Usp.* 65 (11) 1113–1208 (2022); *Usp. Fiz. Nauk* 192 (11) 1185–1296 (2022)) are articles written on the basis of reports 2, 3, 4, 6, 7 and 10.