


**1. Hydrogen economy**

- F. Karaosmanoglu** (Turkey, Istanbul, Istanbul Technical University) (IEB)  
**J. Sen** (Turkey, Istanbul, Istanbul Technical University) (IEB)  
**A.L. Gusev** (Russia, Sarov, STC "TATA")
- 1-1-0-0 History of hydrogen economy  
**T.N. Veziroglu** (USA, Miami, IAHE, UNIDO-ICHET) (HECH)  
**A.G. Galeev** (Russia, Sergiev Posad, JSC "NIIHIMMASH") (IEB)
- 1-2-0-0 Safety of hydrogen energy  
**A.G. Galeev** (Russia, Sergiev Posad, JSC "NIIHIMMASH") (IEB)  
**J. Kleperis** (Latvia, Riga, University of Latvia) (IEB)  
**L.F. Belovodskiy** (Russia, Sarov, RFNC-VNIIEF) (IEAB)
- 1-2-1-0 Hydrogen recombinators  
**A.L. Gusev** (Russia, Sarov, STC "TATA")
- 1-2-2-0 Systems of inert gas blowing off  
1-2-3-0 Ensuring of the safe operation of cryogenic systems  
1-2-4-0 Safe application of hydrogen on board the vehicle
- 1-3-0-0 Gas analytical systems and hydrogen sensors  
**J. Kleperis** (Latvia, Riga, University of Latvia) (IEB)  
**A.M. Polyansky** (Russia, S.-Petersburg, OOO "Electronic & Beam Technologies Ltd.") (IEB)  
**V.M. Aroutiounian**, Academician NAS of Armenia (Armenia, Yerevan, Yerevan State University) (SEB)  
**J. Schoonman** (Netherlands, Delft, Delft University of Technology) (IEAB)  
**L.I. Trakhtenberg** (Russia, Moscow, N.N.Semenov Institute of Chemical Physics RAS) (IEB)
- 1-4-0-0 Hydrogen storage  
**J. Kleperis** (Latvia, Riga, University of Latvia) (IEB)  
**O.N. Srivastava** (India, Varanasi, Banaras Hindu University) (IEB)  
**S.M. Aldoshin**, Academician RAS (Russia, Chernogolovka, IPCP RAS) (SEB)  
**B.P. Tarasov** (Russia, Chernogolovka, IPCP RAS) (IEB)
- 1-4-1-0 Hydrogen storage in carbon nanosystems  
**O.N. Efimov** (Russia, Chernogolovka, IPCP RAS) (IEB)  
**B.K. Gupta** (India, Varanasi, Banaras Hindu University) (IEB)  
**A.V. Vakhroushev** (Russia, Izhevsk, Institute of Applied Mechanics of Ural branch of RAS) (IEB)
- 1-4-2-0 Hydrogen storage in an encapsulated gaseous state: in microspheres, in foam metals, in zeolites and others  
**V.S. Kogan** (Ukraine, Khar'kov, NSC Kharkov Institute of Physics and Technology) (IEB)  
**A.F. Chabak** (Russia, Moscow, Academy of perspective technologies) (IEB)  
**E.F. Medvedev** (Russia, Sarov, RFNC-VNIIEF) (IEB)
- 1-4-3-0 Hydrogen storage in gaseous state under pressure  
**A.S. Koroteev**, Academician RAS (Russia, Moscow, Keldysh Research Center) (SEB)
- 1-4-3-1 Hydrogen storage in gaseous state in large reservoirs  
1-4-3-2 Hydrogen storage in gaseous state in tank
- 1-4-4-0 Hydrogen storage in liquid state  
**A.M. Arkharov** (Russia, Moscow, Bauman Moscow State Technical University) (IEB)  
**A.M. Domashenko** (Russia, Balashikha, JSC "Cryogenmash") (IEB)  
**V.I. Kupriyanov** (Russia, Balashikha, JSC "Cryogenmash") (IEB)  
**A.A. Makarov** (Russia, Sergiev Posad, JSC "NIIHIMMASH") (IEB)  
**G.G. Shevyakov** (Russia, Balashikha, JSC "Cryogenmash") (IEB)  
**V.S. Travkin** (USA, Los Angeles, University of California) (IEB)  
**V.S. Kogan** (Ukraine, Khar'kov, NSC Kharkov Institute of Physics and Technology) (IEB)  
**I.F. Kuz'menko** (Russia, Balashikha, JSC "Cryogenmash") (IEAB)  
**A.G. Galeev** (Russia, Sergiev Posad, JSC "NIIHIMMASH") (IEB)
- 1-4-4-1 Hydrogen storage in cryogenic liquid state in large reservoirs  
1-4-4-2 Hydrogen storage in cryogenic liquid state on board the vehicles  
**B.A. Sokolov** (Russia, Korolyov, S.P.Korolyov Energia RSC) (IEB)
- 1-4-5-0 Hydrogen storage in chemically-bonded state in liquid media
- 1-4-6-0 Hydrogen storage in solid phase state in metal hydride systems  
**M.D. Hampton** (USA, Orlando, University of Central Florida) (DECH)  
**B.P. Tarasov** (Russia, Chernogolovka, IPCP RAS) (IEB)  
**S.P. Gabuda** (Russia, Novosibirsk, IIC SO RAS) (IEB)  
**V.L. Kozhevnikov** (Russia, Ekaterinburg, ISSC Ural Branch of RAS) (IEB)
- 1-4-7-0 Hydrogen storage in combined systems  
1-4-8-0 Hydrogen storage in adsorbed state in cryogenic adsorbents  
1-4-9-0 Novel methods of hydrogen storage
- 1-5-0-0 Hydrogen production methods  
**I.F. Kuz'menko** (Russia, Balashikha, JSC "Cryogenmash") (IEAB)  
**V.V. Lumin**, Academician RAS (Russia, Moscow, M. V. Lomonosov MSU)
- 1-5-1-0 Radiolysis  
**M.A. Prelas** (USA, Columbia, University of Missouri-Columbia) (IEB)
- 1-5-2-0 Electrolysis  
1-5-3-0 Hydrogen production via thermochemical dissociation of water  
1-5-4-0 Hydrogen production by ammonia decomposition  
**V.A. Kirillov** (Russia, Novosibirsk, Boreskov Institute of Catalysis) (IEB)  
1-5-5-0 Method of catalytic conversion (reforming) of gaseous and liquid hydrocarbons  
1-5-6-0 Hydrogen production by partial oxidation of hydrocarbons  
1-5-7-0 High-temperature process for hydrogen production  
1-5-8-0 Hydrates  
**S.P. Gabuda** (Russia, Novosibirsk, IIC SO RAS) (IEB)  
1-5-9-0 Hydrogen production on board of the vehicle from organic fuels  
1-5-10-0 On board hydrogen production via reaction of interaction of water and metals (aluminium, magnesium etc.)
- 1-5-10-1 Mechanic and electric methods of removal of oxide layer during reaction  
1-5-10-2 Chemical methods of removal of oxide layer during reaction  
1-5-10-3 Ultrasonic methods of removal of oxide layer during reaction  
1-5-10-4 Methods of increase of specific surface of metals  
1-5-10-5 Thermal and pressure methods of intensification of hydrogen production  
1-5-10-6 Devices for on board hydrogen production via reaction of interaction of water and metals  
1-5-10-7 Devices for hydrogen production via reaction of interaction of water and metals for domestic applications  
1-5-10-8 Devices for hydrogen production via reaction of interaction of water and metals for commercial applications  
1-5-10-9 Physico-mathematical model of processes of hydrogen production  
1-5-10-10 Novel lines of development of method for on-board application
- 1-5-11-0 Hydrogen production from deep-sea hydrogen sulphide  
**I.M. Neklyudov** (Ukraine, Khar'kov, Khar'kov Physical Technical Institute) (IEB)  
**N.A. Azarenkov** (Ukraine, Khar'kov, Khar'kov Physical Technical Institute) (IEB)  
**V.I. Tkachenko** (Ukraine, Khar'kov, Khar'kov Physical Technical Institute) (IEB)
- 1-5-11-0 Novel hydrogen production methods

## 1-6-0-0 Hydrogen transport

**A.G. Galeev** (Russia, Sergiev Posad, JSC "NIIHIMMASH") (IEB)

1-6-1-0 Transport of liquid cryogenic products by pipelines

**A.M. Domashenko** (Russia, Balashikha, JSC "Cryogenmash") (IEB)

1-6-2-0 Cooling of cryogenic system mains

1-6-3-0 Transient processes in cryogenic systems

## 1-7-0-0 Fuel cells

**B.A. Sokolov** (Russia, Korolyov, S.P.Korolyov Energia RSC) (IEB)

**Yu.N. Shalimov** (Russia, Voronezh, VSTU) (IEB)

**V.P. Pakhomov** (Russia, Moscow, RRC "Kurchatov Institute") (IEB)

1-7-1-0 Research and production of fuel cells

1-7-1-1 Membranes for fuel cells

1-7-1-2 Computer simulation of fuel cell operation

1-7-2-0 Fuel cells application

1-7-2-1 Power supply on fuel cells with methanol conversion for portable devices

1-7-3-0 Fuel cells with hydrogenous fuel pre-processing

## 1-8-0-0 Structural materials

**P.G. Bereztko** (Russia, Sarov, RFNC-VNIIEF) (IEB)

**A.M. Polyansky** (Russia, S.-Petersburg, OOO "Electronic & Beam Technologies Ltd.") (IEB)

**V.M. Chertov** (Russia, Moscow) (IEB)

**Yu.N. Shalimov** (Russia, Voronezh, VSTU) (IEB)

**P.Saint-Gregoire** (France, University de Toulon et du Var) (DECH)

**F.A.Lewis** (Great Britain, Belfast, The Queen's University of Belfast) (SEB)

**A.T. Ponomarenko** (Russia, Moscow, Enikolopov Institute of Synthetic Polymer Materials of RAS) (IEAB)

**L.V. Spivak** (Russia, Perm', Perm' State University) (IEAB)

**M.V. Gol'tsova** (Ukraine, Donetsk, Donetsk STU) (IEAB)

**N.M. Vlasov** (Russia, Podol'sk, SRI SIA "Luch") (IEB)

**I.I. Fedik** (Russia, Podol'sk, SRI SIA "Luch") (IEB)

1-8-1-0 Hydrogen in metals and alloys

**V.A. Gol'tsov** (Ukraine, Donetsk, DonSTU) (IEB)

**L.F. Gol'tsova** (Ukraine, Donetsk, DonSTU) (IEB)

1-8-2-0 Hydrogen degradation

1-8-3-0 Structural materials hydrogenation systems

1-8-4-0 Static and dynamic strength of structural materials

**N.N. Gerdyukov** (Russia, Sarov, Institute of Experimental Gasdynamics and Physics of Explosion RFNC-VNIIEF) (IEB)

1-8-5-0 Gasars. Application of gasars in marine and air fleet, motor-car construction

1-8-6-0 Electrical furnaces for thermovacuum processes

**E.N. Marmor** (Moscow, VNIIEO)

1-8-7-0 New structural materials for renewable energy structures

## 1-9-0-0 Synthesis-gas production methods

**A.Ya. Stolyarevskiy** (Russia, Moscow, RRC "Kurchatov Institute") (IEB)

1-9-1-0 Adiabatic conversion of the natural gas

## 1-10-0-0 Hydrogen fuel vehicles and engines

**T. Gaertig** (Germany, Berlin) (IEB)

**A.L. Dmitriev** (Russia, S.-Petersburg, RSC "Applied Chemistry") (IEB)

**A.M. Domashenko** (Russia, Balashikha, JSC "Cryogenmash") (IEB)

**B.A. Sokolov** (Russia, Korolyov, S.P.Korolyov Energia RSC) (IEB)

**A.Yu. Ramenskiy** (Russia, Moscow, Audit-Premier) (IEAB)

**V.S. Sokolov** (Russia, S.Petersburg) (IEAB)

1-11-0-0 Hydrogen filling stations

1-12-0-0 Hydrogen for providing buildings, structures and houses with energy. Micro hydrogen power plants based on fuel cells



## 2. Thermodynamic analysis in renewable energy

**V. A. Khusnutdinov** (Russia, Moscow, RAO UES of Russia) (IEB)

**A.L. Gusev** (Russia, Sarov, STC "TATA")

2-1-0-0 Thermodynamic analysis of basic energy generation processes in alternative energy

2-2-0-0 Exergetic analysis of basic energy generation processes in alternative energy



## 3. Atomic energy

**Yu. A. Trutnev**, Academician RAS (Russia, Sarov, RFNC-VNIIEF) (HECH)

**A.Ya. Stolyarevskiy** (Russia, Moscow, RRC "Kurchatov Institute") (IEB)

**A.G. Chudin** (Russia, Moscow, Federal Agency for Nuclear Energy) (IEAB)

**V. A. Afanas'ev** (Russia, Sarov, RFNC-VNIIEF) (IEB)

**M. A. Prelas** (USA, Columbia, University of Missouri) (IEB)

## 3-1-0-0 Atomic-hydrogen energy

**N.N. Ponomaryov-Stepnoy**, Academician RAS (Russia, Moscow, RRC "Kurchatov Institute") (SEB)

**A.Ya. Stolyarevskiy** (Russia, Moscow, RRC "Kurchatov Institute") (IEB)

**V.N. Fateev** (Russia, Moscow, RRC "Kurchatov Institute") (IEB)

**A.L. Gusev** (Russia, Sarov, STC "TATA")

3-1-1-0 History of atomic-hydrogen energy

**N.N. Ponomaryov-Stepnoy**, Academician RAS (Russia, Moscow, RRC "Kurchatov Institute") (SEB)

**A.Ya. Stolyarevskiy** (Russia, Moscow, RRC "Kurchatov Institute") (IEB)

**A.L. Gusev** (Russia, Sarov, STC "TATA")

3-1-2-0 High-temperature gas reactors (HTGR) for hydrogen production via high-temperature processes

3-1-3-0 Fast reactors with sodium cooling (SC) to produce mid-temperature heat, and synthesis gas and hydrogen

3-1-4-0 Fast reactors with lead cooling as reactors of future generation to produce high-temperature heat

**G.L. Khorasanov** (Obninsk, SSC of the RF - Institute for Physics and Power Engineering Named After A.I. Leypunskiy) (IEB)

## 3-2-0-0 Atomic energy for vehicles

**M. A. Kazaryan** (Russia, Moscow, P.N. Lebedev FIAN) (IEB)

**I.V. Shamanin** (Russia, Tomsk, Tomsk Polytechnical University) (IEB)

3-2-1-0 Radionuclide heat sources

3-2-2-0 Radionuclide thermoelectric generators

3-2-3-0 Thermo- and radiation-stimulated phase transformation in alloys incorporated (carbides, nitrides, nitrides-hydrides, carbohydrides and hydrides of transition metals, high-temperature, super-conducting materials, intermetallic composition)



## 4. Solar energy

**A. Steinfield** (Switzerland, Zurich, ETH-Swiss Federal Institute) (IEB)

**G.I. Isakov** (Azerbaijan, Baku, Institute of Physics of NAS of Azerbaijan) (DECH)

**I.G. Khidirov** (Uzbekistan, Tashkent, Institute of Nuclear Physics of NAS of Uzbekistan) (IEB)

**S. Geruny** (Armenia, Yerevan, Yerevan State University) (IEB)

**S.M. Raza** (Pakistan, Quetta, University Of Balochistan) (IEB)

**S.Z. Ilyas** (Pakistan, Quetta, University Of Balochistan) (IEB)

**A.M. Pendjiev** (Turkmenistan, Ashkhabat-32, Turkmenian polytechnic institute) (IEB)

**V. F. Gremenok** (Belorussia, Minsk, Joined Institute of Solid State and Semi-conductor Physics) (IEAB)

**V. A. Butuzov** (Russia, Krasnodar, "Yuzhgeoteplo")

4-1-0-0 History of solar energy

4-2-0-0 Solar-hydrogen energy

**T.N. Veziroglu** (USA, Miami, IAHE, UNIDO-ICHET) (HECH)

4-2-1-0 Materials for solar-hydrogen energy

4-3-0-0 Solar power plants

4-3-1-0 Silicone solar thermal electric plants

4-3-2-0 Space solar stations

4-3-3-0 Photoelectric cell

4-3-4-0 Photovoltaic effect in semiconductor structures. Photoelectric modules

4-4-0-0 Ground solar stations

4-4-1-0 Solar collectors

4-5-0-0 Solar cities

4-5-1-0 Solar buildings

4-5-2-0 Solar refrigerators

4-5-3-0 Solar water-lifting systems

4-5-4-0 Solar energy units

4-6-0-0 Solar transport

4-7-0-0 Solar radiation concentrators



## 5. Wind energy

- I. Z. Boguslavskiy** (Russia, Moscow, DBREPE RAS) (IEB)  
**V.L. Okulov** (Russia, Novosibirsk, SB RAS)  
**G.A.M. van Kuik** (Netherlands, Delft, Wind Energy Research Institute)
- 5-1-0-0 Wind energy and architecture
  - 5-2-0-0 Wind energy and ecology
  - 5-3-0-0 Unique wind energy solutions
  - 5-4-0-0 Sail-driven wind energy
  - 5-5-0-0 Hybrid wind turbines
  - 5-6-0-0 History of wind energy
  - 5-7-0-0 Combined wind and hydrogen energy
  - 5-8-0-0 Electric power generators for wind energy
  - 5-9-0-0 New designs of vertical axis wind turbines
  - 5-10-0-0 Horizontal axis wind turbines
  - 5-11-0-0 Savonius vertical axis wind turbines
  - 5-12-0-0 Darrieus vertical axis wind turbines
  - 5-13-0-0 Combined wind and solar power plants
  - 5-14-0-0 Future of wind energy
  - 5-15-0-0 Balloon-based wind energy
  - 5-16-0-0 Wind energy materials
  - 5-17-0-0 Computer simulations of the time profile of dynamic wind velocity component
  - 5-18-0-0 Integrated modeling of vertical axis wind turbines
  - 5-19-0-0 Energy conversion in wind turbines
  - 5-20-0-0 Wind energy applications. Engineering, economy, ecology



## 6. Tide energy and sea tide energy

- 6-1-0-0 History of energy of tides
- A. L. Gusev** (Russia, Sarov, STC "TATA")
- 6-2-0-0 Sea waves energy
- S.P. Kapitza** (Russia, Moscow, IPP RAS)
- 6-3-0-0 Sea tide energy



## 7. Geothermal energy

- V. A. Butuzov** (Russia, Krasnodar, "Yuzhgeoteplo")
- 7-1-0-0 History of geothermal energy
  - 7-2-0-0 Basic research into geothermal energy
  - 7-3-0-0 Problems of geothermal energy assimilation
  - 7-4-0-0 Role of modeling and monitoring in geothermal energy assimilation. Appraisal of geothermal resources
  - 7-5-0-0 Geothermal plants
    - 7-5-1-0 Geothermal power plants
    - 7-5-2-0 Geothermal heat plants
  - 7-6-0-0 Efficiency and reliability of geothermal heat and power plants. Major ways to improve the efficiency of geothermal heat and power plants
  - 7-7-0-0 Geothermal resources of world countries and prospects of their development



## 8. Explosion energy

- V. E. Fortov**, Academician RAS (Russia, Moscow, Institute of thermal physics of extremal state RAS) (SEB)  
**A.L. Mikhailov** (Russia, Sarov, Institute of Experimental Gasdynamics and Physics of Explosion RFNC-VNIIEF) (IEB)  
**N.N. Gerdyukov** (Russia, Sarov, Institute of Experimental Gasdynamics and Physics of Explosion RFNC-VNIIEF) (IEB)  
**A.A. Sterzer** (Russia, Novosibirsk, MATEM Co. Ltd) (IEB)  
**V.N. German** (Russia, Sarov, Institute of Experimental Gasdynamics and Physics of Explosion RFNC-VNIIEF) (IEB)
- 8-1-0-0 Explosion technologies
  - 8-2-0-0 Computer simulation of problems for explosion energy
  - M.A. Syrunin** (Russia, Sarov, IEB RFNC-VNIIEF)

- 8-2-1-0 Setting up problems for explosion energy
  - 8-2-2-0 Mobile Lagrangian and Euler grids
- 8-3-0-0 Explosion deuterium energy
- 8-4-0-0 Explosion energy for syntheses of new materials
  - 8-4-1-0 Materials synthesis and sticking by the explosion
  - 8-4-2-0 Shock-wave sticking
  - 8-4-3-0 Computer modelling of processes of material shock-wave sticking
- 8-5-0-0 Explosives
- 8-6-0-0 Blasting chambers
- A. A. Sterzer** (Russia, Novosibirsk, MATEM Co. Ltd) (IEB)
- 8-7-0-0 Extremal state of matter. Detonation. Shock waves
- 8-8-0-0 Energy materials and physics of detonation
- 8-9-0-0 Equations of the state and phase transition



## 9. Energy of biomass

- S. A. Markov** (USA, Greencastle, DePauw University) (IEB)  
**A. L. Gusev** (Russia, Sarov, STC "TATA")
- 9-1-0-0 Biogas plants
  - 9-2-0-0 Thermochemical gas generators



## 10. Small and micro hydro-power plants

- S. Shatvoryan** (Armenia, Yerevan, Energy Strategy Center) (IEB)
- 10-1-0-0 Equipment for small and micro hydro-power plants (HPP)
  - 10-2-0-0 Derivation micro hydro-power plants



## 11. Nanostructures

- A. M. Lipanov**, Academician RAS (Russia, Izhevsk, Institute of Applied Mechanics UB RAS) (IEB)  
**Yu. M. Shul'ga** (Russia, Chernogolovka, JSC "Cryogenmash") (IEB)  
**V. I. Kodolov** (Russia, Izhevsk, BRHE Centre of Chemical Physics and Mesoscopy) (IEAB)  
**Yu. S. Nechaev** (Russia, Moscow, Bardin Research Institute of the Ferrous-Metals Industry) (IEAB)  
**B. P. Tarasov** (Chernogolovka, IPCP RAS) (IEAB)  
**Yu. D. Tretiakov**, Acad. RAS (Russia, Moscow, FMS MSU) (SEB)
- 11-1-0-0 Nanosystems: synthesis, properties, and application
  - E. A. Goodilin**, Member Corresp. RAS (Russia, Moscow, FMS MSU) (SEB)
  - V.V. Kyrshева** (Russia, Sarov, STC "TATA")
  - 11-2-0-0 Fullerene structures and carbon nanomaterials for heat insulation
  - 11-3-0-0 Fullerene structures and carbon nanomaterials for hydrogen sensors
  - M. V. Vorobiova** (Russia, Moscow, GIREDMET) (IEAB)
  - V. M. Aroutiounian**, Academician NAS of Armenia (Armenia, Yerevan, Yerevan State University) (SEB)
  - 11-4-0-0 Computer simulation of synthesis of carbon nanomaterials with specified properties
  - 11-5-0-0 Carbon nanostructures for vehicles



## 12. Catalysis for renewable energy

- Z. R. Ismagilov** (Russia, Novosibirsk, Boreskov Institute of Catalysis) (IEB)  
**S. M. Aldoshin**, Acad. RAS (Russia, Chernogolovka, IPCP RAS) (SEB)  
**V. N. Parmon**, Academician RAS (Russia, Novosibirsk, Boreskov Institute of Catalysis of SD RAS) (SEB)  
**V. A. Kirillov** (Russia, Novosibirsk, Boreskov Institute of Catalysis of SD RAS) (IEB)  
**O. N. Efimov** (Russia, Chernogolovka, IPCP RAS) (IEB)  
**N. N. Vershinin** (Russia, Chernogolovka, IPCP RAS)
- 12-1-0-0 Catalytic methods for synthesis of alternative fuel
  - 12-2-0-0 Catalysis in combined schemes «energy generation and production of useful products from natural gas»
  - 12-3-0-0 Catalysis in generation of working fluid in gas turbines as an effective alternative flare generation method
  - 12-4-0-0 Catalysis of fuel cells



- 12-5-0-0 Catalysis in processes of production of synthesis gas and hydrogen
  - 12-6-0-0 Catalytic methods of hydrogen treatment
  - 12-7-0-0 Catalysis in treating of power reactor waste gases
  - 12-8-0-0 Catalysis in process water treatment systems
  - 12-9-0-0 Photocatalytic and electrocatalytic methods for hydrogen production
  - 12-10-0-0 Development and study of material properties to form catalytic layers in fuel cells
  - 12-11-0-0 On mechanism of catalytic action. Effect of metal nature and degree of oxidation thereof on catalytic activity
  - 12-12-0-0 Nanocomposites for application as catalysts. Effect of dimension factor on catalytic activity
  - 12-13-0-0 Alternative catalysts with no platinum
  - 12-14-0-0 Problems of catalyst poisoning
  - 12-15-0-0 Catalyst carriers: design, synthesis, and properties
- A.Ya. Vul' (Russia, St. Petersburg, Ioffe Institute)*  
 12-16-0-0 Catalytic layers for fuel cells in planar design  
 12-17-0-0 Sol-gel process for production of catalysts and catalyst carriers



### 13. Thermogradient energy

*V. A. Khusnutdinov (Russia, Moscow, RAO UES of Russia) (IEB)*  
*A. L. Gusev (Russia, Sarov, STC "TATA")*



### 14. Ice energy

*A. L. Gusev (Russia, Sarov, STC "TATA")*

- 14-1-0-0 Application of ice in energy. Glacial power stations
  - 14-2-0-0 Application of cold of permafrost for thermostatic control of domestic and process structures
  - 14-3-0-0 Physical and chemical properties of ice
  - 14-4-0-0 Thermal properties of ice
  - 14-5-0-0 Thermodynamic basis for production and application of ice
  - 14-6-0-0 Equipment for ice testing
  - 14-7-0-0 Facilities for ice production
  - 14-8-0-0 Methods and machinery for ice emergent break up for safety depth devices and over-land vehicles undergoing disaster
  - 14-9-0-0 Binary ice in science and technique
- A. L. Gusev (Russia, Sarov, STC "TATA")*  
 14-10-0-0 Application of ice for construction of engineering and technical, and architecture structures  
 14-11-0-0 Ice dynamics and strength. Embrittlement dynamics. Experimental methods of ice breaking up dynamic mechanics  
 14-12-0-0 Numerical and combined numerical and experimental methods of ice breaking up dynamic mechanics  
 14-13-0-0 Techniques for removing ice from water reservoirs  
 14-14-0-0 Cold storage and application  
 14-15-0-0 Transport of icebergs and production of fresh water



### 15. Thermonuclear energy

*V. N. Lobanov (Russia, Sarov, RFNC-VNIIEF) (IEB)*

- 15-1-0-0 Investigations on the controlled thermonuclear fusion
- 15-2-0-0 X-ray thermonuclear fusion
- 15-3-0-0 Beam fusion
- 15-4-0-0 Inertial fusion
- 15-5-0-0 Isotope effect
- 15-6-0-0 Cryogenic tritium targets
- 15-7-0-0 High-pressure targets designed for research of nuon catalysis processes in nuclear fusion

- 15-8-0-0 International project of thermonuclear fusion reactor, ITER
  - 15-9-0-0 Radiological protection and nuclear security
  - 15-10-0-0 Production of radioisotopes and application
- M. A. Kazaryan (Russia, Moscow, FIAN Lebedev Institute of Physics of RAS) (IEB)*  
 15-11-0-0 Fuel cycle and ecology  
 15-12-0-0 Design, construction and maintenance of nuclear research and power reactors  
 15-13-0-0 Production of components and materials required for application in nuclear reactors and fuel cycles thereof  
 15-14-0-0 TOKAMAK systems  
 15-15-0-0 Auxiliary magnetocumulative systems



### 16. Cryogenic and pneumatic vehicles

*A. L. Gusev (Russia, Sarov, STC "TATA")*

- 16-1-0-0 Cryogenic nitrogen transport
- 16-2-0-0 Inert gas-based cryogenic vehicles for hazardous structures: fire engines, air port auxiliary vehicles, fuel and lubricant storage, vehicles in dangerously explosive chemical production
- 16-3-0-0 Pneumatic vehicles



### 17. Basic problems of energy and renewable energy

- 17-1-0-0 Electric energy storage
- 17-2-0-0 Superconductive materials. Superconductivity. Superconductivity of energy
- 17-3-0-0 New cycles and schemes for thermotransformers
- 17-4-0-0 Problems of megapolise illumination



### 18. Application of helium and special materials in vehicles

*Yu. A. Ryjov, Academician RAS (Russia, Moscow, International University of Engineering) (SEB)*

- 18-1-0-0 Airships to transfer large-sized cargoes
- 18-2-0-0 Airships to control states of emergency in megapolises: car inspection, fire safety, terrorism combat, technical and ecological state control of industrial buildings and structures. Energy control (heat leak control in buildings on a city's scale)
- 18-3-0-0 Fire fighting airships, counteracting, and police airships



### 19. Juvenile hydrogen in geotectonics and geochemistry processes

*S. V. Digonskiy (Russia, Ekaterinburg, FGUP "Urangologorazvedka") (IEB)*

*V. L. Syvorotkin (Russia, Moscow, M.V.Lomonosov MSU) (IEB)*

- 19-1-0-0 Role of hydrogen in chemical composition of the universe
- 19-2-0-0 Diving forces in the evolution of Earth and planets
- 19-3-0-0 Hydrogen in the Earth's core
- 19-4-0-0 Geology and geochemistry of natural gases in deep fault areas
- 19-5-0-0 Transport of juvenile hydrogen through the Earth stratum and formation of electrically charged zones
- 19-6-0-0 Natural synthesis of carbon-based substances
- 19-7-0-0 Deep degasifying of the Earth, global disasters and anomalous phenomena



### 20. On-board energy accumulators

- 20-1-0-0 Thermal energy accumulators

*A. L. Gusev (Russia, Sarov, STC "TATA")*

- 20-1-1-0 Temperature above 273 K

- 20-1-2-0 Temperature below 273 K
- 20-1-3-0 Temperature below 77 K
- 20-2-0-0 Flywheel energy accumulators
- 20-3-0-0 Electrical energy accumulators
- 20-4-0-0 Spring energy accumulators
- 20-5-0-0 Compressed-air energy accumulators
- 20-6-0-0 Chemical energy accumulators



### 21. Legislative basis

**P.B.Shelishch** (Russia, Moscow, RF State Duma, President of National Association of Hydrogen Energy) (IEAB)

- 21-1-0-0 Legislation basis for renewable energy in Russia
- 21-2-0-0 Legislation assurance for innovation development of hydrogen energy
- 21-3-0-0 Legislation basis for renewable energy in CIS
- 21-4-0-0 Legislation basis for ecology



### 22. Economical aspects

- 22-1-0-0 Investment attractiveness of various countries and companies in renewable energy
- 22-2-0-0 Resources of conventional energy sources in exporting countries and world resources
- 22-3-0-0 National scientific and technological programmes of the development of hydrogen economy
- 22-4-0-0 Economical analysis in renewable energy
- V. A. Khusnutdinov** (Russia, Moscow, RAO UES of Russia) (IEB)
- 22-5-0-0 Business-planning in renewable energy



### 23. Energy and ecology

**O.L.Figovsky** (Israel, Israel Research Center Polymate) (IEB)  
**M.V.Vorobiova** (Russia, Moscow, GIREDMET) (IEB)  
**A.L.Gusev** (Russia, Sarov, STC "TATA")

- 23-1-0-0 Greenhouse gas effect
- 23-2-0-0 Ecological problems of industrial megapolises
- 23-3-0-0 Ecology of air atmosphere and space
- 23-4-0-0 Ecology of water resources
- 23-5-0-0 Problems of unhealthy atmospheric emissions by heat-electric generating plants
- 23-6-0-0 Problems of ground pollution by energy carriers
- 23-7-0-0 Ecological tourism and ecological resorts
- 23-8-0-0 Problems of factory and domestic waste utilization



### 24. Energy efficiency methods and facilities for aggressive gas mixture separation and purification

**A.L.Gusev** (Russia, Sarov, STC "TATA")  
**M. A. Kazaryan** (Russia, Moscow, P.N.Lebedev FIAN) (IEB)  
**A. A. Bobrova** (Russia, Sarov, RFNC-VNIIEF)



### 25. Multy mode vehicles

**A.L.Gusev** (Russia, Sarov, STC "TATA")  
**O.B. Baklitskaya** (Russia, Sarov, STC "TATA")  
**M.A.Kazaryan** (Russia, Sarov, STC "TATA")



### 26. Nanotechnology for renewable energy

**A.L.Gusev** (Russia, Sarov, STC "TATA")  
**V.V. Kursheva** (Russia, Sarov, STC "TATA")  
**O.N.Efimov** (Russia, Sarov, STC "TATA")



### 27. Innovative solutions in alternative energy and ecology

**A.L.Gusev** (Russia, Sarov, STC "TATA")



### 28. External and onboard vehicle energy recovery systems

**A.L.Gusev** (Russia, Sarov, STC "TATA")



### 29. Education and scientific research centres

**L.A.II'haeva** (Russia, Sarov, RFNC-VNIIEF) (IEAB)  
**B.F.Reutov** (Russia, Moscow, Federal Agency for Education and Sciences of RF) (IEB)  
**A.V.Chuvikovskiy** (Russia, Sarov, RFNC-VNIIEF) (IEB)  
**Yu. P. Shcherbak** (Russia, Sarov, Sarov Physicotechnical Institute) (IEB)  
**J.-P. Contzen** (Belgium, von Karman Institute for Fluid Dynamics) (IEB)  
 29-1-0-0 Educational activities in the field of alternative energy and ecology

- 29-1-1-0 Educational activity within school program
- 29-1-2-0 Educational activity in institutes of higher education
- 29-2-0-0 Hydrogen trading estates and science and research cities
- 29-3-0-0 Young people in alternative energy and ecology science and technology



### 30. Energy-saving technologies, materials, systems, and instruments

**A.L.Gusev** (Russia, Sarov, STC "TATA")



### 31. Problems of oil, gas, and coal industry

**A.L.Gusev** (Russia, Sarov, STC "TATA")  
 31-1-0-0 Problem definition for scientists and engineers to form a Task Order for research and R&D works taking into account ecological aspect



### 32. Information

**A.I.Salikov** (Russia, Moscow, CNIIATOMINFORM) (IEAB)  
**E.M.Tararaeva** (Russia, Moscow, CNIIATOMINFORM) (IEAB)  
**E.A.Goodilin**, Member Corresponding RAS (Russia, Moscow, FMS MSU) (SEB)  
**I.V. Lobanova** (Russia, Sarov, STC "TATA")

- 32-1-0-0 Review of periodicals
- 32-2-0-0 Review of leading internet-resources
- 32-3-0-0 Prominent scientists' biographies
- 32-4-0-0 Scientific funds and scientific projects
- 32-5-0-0 International scientific conferences
- 32-6-0-0 Advertising matters of investment companies and manufacturers
- 32-7-0-0 Review of new scientific books
- 32-8-0-0 Patents
- 32-9-0-0 Encyclopedia of renewable energy. Terms and definitions
- 32-10-0-0 Opinions, letters in publishing office, short articles
- 32-11-0-0 Messages of members of Scientific editorial board
- 32-12-0-0 Energetic companies

## Abbreviation



SEB — Scientific Editorial Board  
 IEB — International Editorial Board  
 IEAB — International Editorial Advisory Board  
 EB — Experts Board  
 IRB — International Reviewers Board

