17th IAA Humans in Space Symposium
Moscow, Russia, June 7-11, 2009

Principal Sponsor:
International Academy of Astronautics
Host:
Russian Academy of Sciences

17th IAA Humans in Space Symposium was organized by the State Scientific Center of the Russian Federation — Institute of Biomedical Problems and dedicated to the memory of the prominent Russian scientist Academician Oleg G. Gazenko (1918-2007).
17th IAA Humans in Space Symposium was performed with support of:

- Federal Space Agency of the Russian Federation
- Ministry of Science and Education of the Russian Federation
- Russian Academy of Medical Sciences
- Scientific Council on Physiological Sciences of the Russian Academy of Sciences
- Executive Bureau on Space of the Russian Academy of Sciences
- Russian Foundation of Basic Researches
- Federal Biomedical Agency of the Russian Federation
- Russian Academy of Cosmonautics named after K.E. Tsiolkovsky
17th IAA Humans in Space Symposium provided a forum for presentation and discussion of topics related to the theme:

"Humans in space for life sciences developing, peace and progress on Earth".
Organizing Committee

Chair: A. Grigoriev
Vice-Chairs: Sh. Chen, J. Davis, A. Krasnov, R. White, M. Zell

Local Organizing Committee

Chair: O. Orlov
Vice-Chairs: G. Horneck, A. Romanov, V. Soloviev, V. Tsibliev

Scientific program committee

Chair: V. Baranov

### Number of participants of Symposium from different countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of participants</th>
<th>Country</th>
<th>Number of participants</th>
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</thead>
<tbody>
<tr>
<td>1. Russia</td>
<td>103</td>
<td>12. Poland</td>
<td>3</td>
</tr>
<tr>
<td>2. USA</td>
<td>40</td>
<td>13. Austria</td>
<td>2</td>
</tr>
<tr>
<td>4. People's Republic of China</td>
<td>14</td>
<td>15. India</td>
<td>2</td>
</tr>
<tr>
<td>5. France</td>
<td>9</td>
<td>16. Kazakhstan</td>
<td>2</td>
</tr>
<tr>
<td>6. Japan</td>
<td>6</td>
<td>17. United Kingdom</td>
<td>2</td>
</tr>
<tr>
<td>7. Canada</td>
<td>5</td>
<td>18. Ukraine</td>
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</tr>
<tr>
<td>8. Belgium</td>
<td>4</td>
<td>19. Finland</td>
<td>1</td>
</tr>
<tr>
<td>9. Italy</td>
<td>4</td>
<td>20. Norway</td>
<td>1</td>
</tr>
<tr>
<td>10. Netherlands</td>
<td>3</td>
<td>21. Greece</td>
<td>1</td>
</tr>
<tr>
<td>11. Republic of Korea</td>
<td>3</td>
<td><strong>Total:</strong> number of participants/countries</td>
<td><strong>234 / 21</strong></td>
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</tbody>
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Among 234 participants: 58 members of IAA and 47 young scientists, including 27 students
Program of Symposium

- Opening ceremony
- Plenary event
- Scientific sessions
- Key note lectures
- Cosmonauts’ panel
- Technical tours
- Social events
The Plenary event

Oleg G. Gazenko – eminent scholar and science leader

- Honorary member of the Russian Academy of Cosmonautics, US and Polish Physiological Societies.
- Honorary Doctor of the Military Medical Academies in USA and Poland, and Right University, USA.
- President of Ivan P. Pavlov’s Physiological Society (1984-2004), editor-in-chief of Russian journals Advances in Physiological Sciences and Space Biology and Aerospace Medicine.
- Laureate of the State Prize and the Prize of the Government of the Russian Federation in the area of science and technology.
- Cavalier of numerous orders and medals.
- Director of IBMP in the period from 1969 to 1988.

(1918-2007)
The Scientific program

The Program Committee selected more than 270 abstracts for oral presentations and posters.

Various aspects of Space Life Sciences were discussed on 17 scientific sessions.

Each session included 7-10 oral presentations and 1-24 posters.

In addition during the session “Countermeasures in Long-term Space Flights” the Workshop on Standardization of Bedrest Studies was held.

Besides the opening ceremony, during the Symposium 23 scientific sittings were held.

The book of abstracts has been published.

71 papers presented on scientific sessions were recommended for publication in “Acta Astronautica”.
List of scientific sessions

1. Cardiovascular and Respiratory Systems: Adaptation to Microgravity
2. Sensory-motor Effects of Hypogravity (two sittings)
3. Radiation Environment in Space – Measurements and Calculations
4. Education, Outreach and Spin-off activities
5. Problems of Operational Medicine (two sittings)
6. Radiation Safety in Space
7. Advanced Life Support Systems (two sittings)
8. Microgravity-induced Skeletal Muscle Alternations
9. Space Cell Biology
10. Countermeasures in Long-term Space Flights (two sittings) + Workshop on Standardization of Bedrest Studies
11. Bone and Water Ion Metabolism in Microgravity
12. Behaviour and Performance
13. Astrobiology and Planetary Protection
14. Metabolism and Immunity
15. Psychosocial Issues
16. Environment Monitoring and Control
17. Space Tourism
<table>
<thead>
<tr>
<th>Topic of key note lecture</th>
<th>Name of lecturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Astronauts' Radiation Safety in Interplanetary Manned Spaceflights, Including the Martian Mission</td>
<td>Dr. Guenther Reitz (Germany)</td>
</tr>
<tr>
<td>2. Next Steps in Exploration</td>
<td>Dr. Jeffrey R. Davis (USA)</td>
</tr>
<tr>
<td>3. China Manned Space Program, Its Present and Future</td>
<td>Dr. Lin Xiqiang (People's Republic of China)</td>
</tr>
<tr>
<td>4. Collaborative Approaches to Research and Education in Biomedicine for Human Spaceflight</td>
<td>Dr. Jeffrey P. Sutton (USA)</td>
</tr>
<tr>
<td>5. Space Exploration and its Spiritual Spin-off</td>
<td>Dr. Chiaki Mukai (Japan)</td>
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Cosmonauts’ panel

The main topic for discussion: “Role of crewmembers in productive performance of space mission program and realization of onboard scientific investigations”

10 cosmonauts and astronauts who have experience of space flight and 3 members of the Russian cosmonaut team preparing to fly into space attended in this panel.
On the final day of the Symposium the following technical tours were carried out:

- In the Gagarin Cosmonauts Training Center,
- In Mission Control Center, Museum of Rocket and Space Corporation “Energia”,
- In the Institute of Biomedical Problems.

More than 50 participants of the Symposium took part in the technical tours.
Social program

The social program of the Symposium included:

- Welcome reception
- Banquet,
- City tours,
- Excursions to the Moscow Kremlin museums
- Trip to Saint-Petersburg after finishing the Symposium
Thank you very much for your attention!