# International Symposium on Impact of Space Technology Innovation on Economic Development

## April 17 - 20, 2001, Shanghai, China

**Co-Sponsored by**

**Chinese Academy of Astronautics**
**International Academy of Astronautics**

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## AIM OF THE SYMPOSIUM

At the beginning of the new millennium, the Chinese Society of Astronautics (CSA) and the International Academy

of Astronautics (IAA) were pleased to hold jointly an International Symposium from April 17 to 20, 2001, with the theme of "Impact of Space Technology Innovation on Economic Development". The aim of the Symposium was to provide a forum to discuss and exchange ideas on how space technology innovation impacts the sustainable economic growth and brings benefits for the mankind, at the same time, to explore the possibility for developing cooperative projects.

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**OPENING CEREMONY AND CLOSING CEREMONY**

OPENING CEREMONY
hosted by Prof. Zhang Baoqian, Vice President of CSA.

Opening Addresses:
oProf. Wang Liheng, Chairman of Local Organizing Committee
oShanghai City Government Representative
oDr. Jean Michel Contant, IAA Secretary General

Theme Addresses:
oMr. Philippe Couillard, President & CEO of EADS Launch Vehicles Company
"Impact of Technology Innovation on Economic Development"
oProf. Guo Baozhu, Vice Administrator of China National Space Administration

CLOSING CEREMONY

Special Address:
oProf. Alain Bensoussan, President of CNES & Chairman of ESA Council
"The European Strategy: Meeting the New Demands of our Society"
Closing Addresses:
oProf. Liang Sili, IPC Co-Chairman
oDr. Dietrich E. Koelle, IPC Co-Chairman

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**PLENARY SESSION**
MAIN TOPICS
1. Predicting the Future of Space Technology Development
2. Space Technology for Sustainable Development to Human Society and Economy
3. Space Technology and Innovation of Traditional Industries
4. Approaches to Develop Space Technology for Developing Countries
5. Commercialization of Space Technology (Competition and Cooperation)
6. Exploration of Possible Space Cooperative Projects

**Wednesday April 18**

Co-Chairmen: Dr. Dietrich E. Koelle(Germany)
Prof. Zhuang Fenggan(China)

**Recent Advances in Space Science and Application Research in China**
Jiang Jingshan, China

**European Strategy for Space Technology Research and Development**
Angelo Atzei, Italy and Hans Kappler, Germany

**Building-up the Capability for Fast-entrance into Space and Swift Putting into Operation**
Yin Xingliang, China

**The European Ariane Launch Service and its Contribution to Economic Development**
André Van Gaver, France

**Wednesday April 18** (2)

Co-Chairmen: Prof. Angelo Atzei (Italy)
Prof. Wu Meirong (China)

**Development of CBERS through the International Cooperation in Space**
Yang Weiyuan, J.R. Coelho and Gao Yan, China & Brazil

**CRESDA Data Processing System of CBERS-1 and the Key Technolgies and Creative Points of the System**
Wu Meirong, China

**Chinese Meteorological Satellite and Its Function in the Monitoring of Natural Disaster and Earth Environment**
Xu Boming, Lin Yukun and etc. , China

**Chinese Meteorological satellite Program: Status and Plan**
Dong Chaohua, China

**Meteorological Satellite FY-1C and Its Applications**
Shen Cong, Meng Zhizhong and Wang Jinhua,China

**Applications of FY-1C Polar-orbiting Meteorological Satellite in Natural Disaster and Environment Monitoring**
Liu Yujie and Liu Cheng, China

**The Relationship Between Development of Space Industry and Increase of National Economy**
Liao Shaoying, China

**Cooperation on Micro Satellites As mean to Promote Space Technology in Developing Countries of the Asia Pacific Region**
Lin Xiaohui, Zhang Yingchun and Cao Xibin, China, Rainer Protsch and Klaus Schonherr, Germany

**Analysis on the Market and Economical Benefit of Chinese Small Satellite**
Zhu Hongguang, China

**Chinese Meteorological Satellite and Its Technological Development Approach**
Meng Zhizhong, Hou Jianwen and Zhu Hong, China

**Earth Remote Sensing-as a Universal Technology for Reception of Information Necessary to Solve Social and Economic Tasks, Natural Resources and Ecological Monitoring**
G.P. Anshakov, Russia

**Improving the Applicability of Earth Observation Data**
Jean Pierre Guignard and Ivan Petiteville, France

**Demands of Satellites Communication to Laser Intersatellite Links in 21st Century**
Ma Jing, Tian Liying, and etc., China

**Development and Application of Spaceborne Microwave Radiation Imager**
Chen Weiying Wang Yun, Shi Bangyao and etc.,China

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**Thursday April 19**

Co-Chairmen: Prof. Gunther Seibert (France)
Prof. Huang Zuoyi (China)

**How Much New Technology is Required for Future Reusable Launch Systems?**
Dietrich E. Koelle, Germany

**New Concepts of Space Launch Risk**
Control Huang Zuoyi, China

**Wider Utilization of Space Enabled by the Future Space Transportation System**
Ryojiro Akiba, Takaji Kuroda and Noboru Wakasugi, Japan

**New Propulsion System for China Future Aerospace Applications**
Zhang Guitian and Liu Hongjun, China

**Companion Satellite and International Space Cooperation for International Space**
Station Zhang Xiaomin, Xiao Yelun and etc., China

**Tourist Space Flights-A Vision for 2020 and its Challenges for Today**
Werner Inden, Germany

**Potential Use of Space Environment in Creating New Genotype of Crop Improvement**
Sun Yeqing,Gao Yahua, and etc., China

**Closed Life Support Systems As An Impetus To Advanced Technology**
Development Alexander Tikhomirov, Russia

**Space Research and Experiment Stations are Innovational Promoting Economy Base Characterized by Microgravity**
Xi Risheng and Qiu Jiawen, China

**Spin-offs and Technology Transfers from European Microgravity Research**
Programmes Gunther Seibert, France

**Thursday April 19** (2)

Co-Chairmen: Dr.R. Bryan Erb (Canada)
Prof. Zhuang Hongchun (China)

**Earth Remote Sensing Constellations**
Design Veniamin V. Malyshev, Russia

**The Effect of Space Technology and Innovation to the Related Industry**
Zhou Limin, Wang Qianwu and Liu Xiaodi, China

**Space Solar Power for Sustainable Economic Development**
R. Bryan Erb, Canada

**General Approach for Developing Country to Speed the Development and Application of Space Technology**
Ma Wenpo, China

**SC Power Complexes Development Prospects and Some Aspects of Application in the National Economy**
Valery I. Pushkin, Russia

**The Concept Study of Space-Based Deep Space C&T Network**
Jiang Chang,China

**Autonomy Technology--the Key Technology on the Deep Space Exploration**
Cui Pingyuan, Xu Rui, Cui Hutao, China

**Strengthening the Study of The Space Debris Problem**
Xue Fuxing, China

**Fault-tolerance and Disaster Protection of the Complex Technical Systems**
Gennyady P. Anshakov, Iakov. A. Mostovoy, Russia

**Feasibility of Voltage Homogenizing Technique by Space Plasma Used As Lightning Protection on the Ground**
Zhuang Hongchun, China

**Nongovernmental Channel for Developing Countries to Develop Space Technology**
Zhang Xiaomin,Tian Yan and etc., China

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**Friday April 20**

Co-Chairmen: Prof. Hans Kappler (Germany)
Dr. Jack M. Cherne (U.S.A.)

**The Role of Foreign, Private Capital in the Development of A Space Economy**
Fabian Eilingsfeld, Germany

**The Integrative Application of Forecast Methods in Satellite Cost Estimating**
Wang Zhaoyao, Chen Bin, and Cui Baoling, China

**Decision-Making Models For Budget Optimization: A Sizable Impact on Economic Development**
Jean Michel Contant, France

**Financing New Commercial Space Ventures**
Joerg Kreisel, Germany

**Space -Borne Flywheel and the Commercialization of Its Technology**
Meng Zhizhong, Liu Shengzhong and etc., China

**Developing An Economically Viable, International, Large-scale Lunar Colony**
Jack M. Cherne, U.S.A.

**Risk Management Systems: The Example of PACTES for Flood Management**
Fabienne Jacq, France