

SPACE FOR BUSINESS

ESA'S NEWSLETTER OF THE HUMAN EXPLORATION PROMOTION DIVISION
AND THE TECHNOLOGY TRANSFER PROGRAMME OFFICE 02 / 2007

SPACE RESEARCH FOR EUROPE'S MATERIALS AND PROCESSES INDUSTRY

THE EUROPEAN SPACE AGENCY HAS APPOINTED A COMMERCIAL AGENT NETWORK TO TARGET THE MATERIALS AND PROCESSES INDUSTRY TO MARKET AND SELL THE USE OF SERVICES, RESOURCES AND FACILITIES THAT ESA CAN OFFER ON THE INTERNATIONAL SPACE STATION.



pcb - printed circuit board

Rome based technology transfer company Innova S.p.A. won the bid to become the prime contractor of ESA's second Commercial Agent Network. Together with seven sub-contractors, Innova will tackle the vast area of markets summed up under the term Materials and Processes, which includes industry branches as varied as metal, textile, energy, electronics or construction.

The network will consist of seven companies from three European countries, namely Innova (Italy), KB&P (Germany), ISS Lab Ruhr GmbH (Germany), Bureau BD (The Netherlands), D'Appolonia (Italy), Centro Sviluppo Materiali (Italy) and the AGT Group (Italy). Through this network structure, a larger geographical spread and a wider range of expertise in the sub-markets of the Materials and Processes area, such as New Materials, Nanotechnology, Combustion and Interfacial mass and energy exchange can be achieved.

"We are very proud of starting this collaboration with ESA on such a challenging commercial project" says Pier Luigi

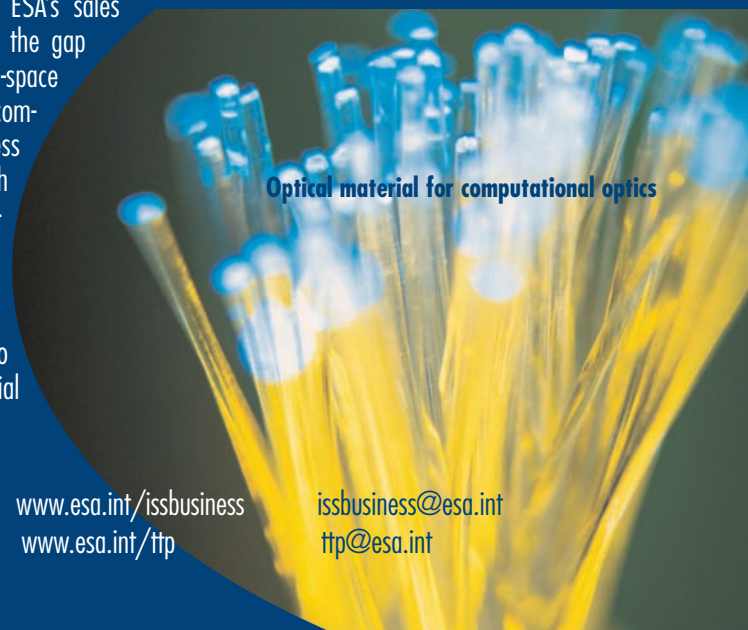
Franceschini, Project Manager of the Commercial Agent Network in the Materials and Processes sector. "This activity is of primary importance for Innova. There is a good deal of unexplored opportunities to perform industrially-relevant research in space, and these opportunities will grow enormously from 2008 onwards, when the European research laboratory Columbus will be on orbit. Recent advances in new materials and the fast-growing field of nanotechnology are posing many scientific and technological questions that could be answered through research on board the ISS. Our role is to effectively communicate these benefits to the industries and to lead them through the entire process of development and implementation of research projects, in close collaboration with ESA".

The two Commercial Agent Networks now in place – the first being ISS Lab Ruhr GmbH with its sub-agents for the Life Sciences sector – act as ESA's sales force, appointed to bridge the gap between ESA and the non-space industry by marketing the commercial opportunity to access the ISS to perform research or test technologies in markets that could benefit from microgravity research.

ESA took the decision to open the ISS for commercial

utilisation in 2001. In 2004, ESA's first Commercial Agent Network for the market sector of biotechnology, health, food and nutrition was appointed, lead by German ISS Lab Ruhr GmbH. The model proved of value, as their first successful commercial project was carried out on the ISS during ESA's Astrolab mission by German ESA astronaut Thomas Reiter.

"The appointment of Innova as our new Commercial Agent now allows ESA to also identify and support companies in the materials and processes market sector so that they can easier benefit from the unique research and technology demonstration opportunities onboard the ISS." says Andreas Diekmann, Head of the ESA's Human Exploration Promotion Division. "Both Commercial Agents are experts in their market fields and therefore best placed to support companies in defining and implementing experiments on the ISS that respond to their specific research or technology demonstration objectives. If requested, ESA can further support >>



Optical material for computational optics

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with experience gained from the scientific utilisation of the ISS."

Microgravity research in the Materials and Processes sector has already proven to be fruitful as the ESA-coordinated EC project IMPRESS (Intermetallic Materials Processing in Relation to Earth and Space Solidification) shows. This five year project that coordinates the research of 42 partners from 15 European countries plus Russia wants to dig deeper into understanding the

link between materials processing, structure and the final properties of new high-performance intermetallic alloys through research in weightlessness.

The newly gained knowledge could be translated into breakthrough prototypes tailored for extreme applications, such as special high-quality light-weight cast turbine blades, to be used in aero-engines and stationary gas turbines or gas-atomised intermetallic powders to be used for example in hydro-

gen-fuel cells. Thus, ESA fosters not only research in Europe but acts also as a steppingstone for innovative businesses. ■

RELATED LINKS:

www.esa.int/issbusiness
www.european-biospace.com
www.innova-eu.net

ESA LAUNCHES ITS FOURTH SUCCESS STUDENT CONTEST - UNIVERSITY STUDENTS CAN SUBMIT SPACE EXPERIMENTS FOR THE ISS

STUDENT EXPERIMENTS FOR THE ISS

In order to stimulate the minds of young people, the European Space Agency (ESA), one of the major partners in the International Space Station (ISS) programme, is organising the SUCCESS Student Contest. Undergraduate university students can participate to this contest and propose an experiment that they would like to be conducted on board the ISS.

The proposed experiment has to utilise one of the unique features provided by the ISS, such as for example: weightlessness, the

fact that ISS provides a viewport to the universe without looking through the atmosphere, the global view of the Earth, the isolated environment of the crew etc.

The first prize of the contest is a one-year paid internship at ESA's research and technology centre ESTEC in the Netherlands where the winner(s) can work, with the support of a dedicated team, on their own experiment, preparing it for conduct on board the International Space Station. "The experience is not only incredibly inspiring, it

also prepares the participating students for a future career either at ESA or within the European space industry" says Rogier Schonenborg, SUCCESS student contest project manager.

Participating students shall describe their initial ideas in a one A4 page essay that shall be submitted via the SUCCESS web page: www.esa.int/success, where additional information can also be found. ■

EUROPEAN SPACE TECHNOLOGY TRANSFER CONFERENCE TO PRESENT DOWN-TO-EARTH INNOVATIONS DERIVED FROM SPACE

AIRBAG SENSORS FROM SPACE



The Kinotex technology developed for one of the ISS Robotic arms served as inspiration for a new airbag passenger recognition sensor as well as pedestrian protection sensors in cars, patient monitoring systems in mattresses and a touchpad character recognition system

Innovation is the heart of the European industry and the motor of Europe's entrepreneurial success. What most people associate with innovation is new top-notch technologies or revolutionary ideas.

But innovative solutions are hardly ever created completely from scratch. The Merriam-Webster dictionary defines innovation as 'something created for the first time through the use of the imagination'. What this actually means is that innovation can also be thinking out of the box and discovering a brand-new way of using a technology that already exists. To leverage this idea, ESA's Technology Transfer Office will be holding the first annual European Space Technology Transfer Conference (ESTTC) 2007 at the new Munich trade fair centre 16-17 October 2007. >>

Taking place in parallel to the Materialica Tradefair, the ESTTC aims at fostering the transfer of high-tech space technology to sophisticated technology solutions on Earth.

“It is important to show companies that they do not have to reinvent the wheel to create an innovative product. Top-notch space technology is already there — and a lot of it can be transferred to create top-notch applications on Earth”, explains Frank M. Salzgeber, Head of the European Space Agency’s Technology Transfer Programme. Nearly all sectors of Europe’s industry can profit from technology originally developed from space.



The Kinotex technology used in the automotive sector for pedestrian protection

The ESTTC wants to build the bridge between space-derived technology and Europe’s innovation leaders by demonstrating successful transfers of space technology to the automotive, medical, energy, textile and robotic market sectors, thus bringing companies with innovative business ideas looking for high technology solutions together with space industries that wish to exploit their technology to create state-of-the-art innovations through synergetic cooperation.

AIRBAG SENSORS FROM SPACE TECHNOLOGY

There are plenty of success stories of space technology transfer to improve an earthly application. One of the latest ones is the Kinotex Sensor GmbH, which used the license of a tactile sensor developed for the robotic arms on the International Space Station to improve passenger safety in cars.

The robotic arm on the ISS is used to maneuver large construction parts and modules in space. It is remote-controlled from within the ISS. To prevent it from accidentally crashing into the outer hull of the Space Station, tactile sensors were deve-

veloped, which can sense pressure and - like the human skin — can give feedback about e.g. pressure intensity, to control the movement of the robotic arm and safeguard the ISS and the astronauts during robotic arm operations. The patent for this sensing-technique called ‘Kinæasthic Textiles’, or short ‘Kinotex’, was transferred to Earth first by Tactex Controls Inc. for applications such as touchpads etc. Automotive and aeronautical applications are the domain the of Kinotex Sensors GmbH. The application possibilities for the Kinotex technology are vast — and sought-after. In the automotive industry, Kinotex can be applied to advanced passenger security measures such as occupant sensing for the airbag mechanism and crash-sensing for pedestrian safety. The superiority of this space sensing-technology is valued by a number of top automotive players — Kinotex is a listed supplier of Audi, BMW, Audi and Daimler Chrysler.

But this is not the only area in which the Kinotex Sensors can be applied; the aeronautic industry is also interested. Kinotex Sensors GmbH are involved in improving crash safety for helicopter crews, whilst

two projects are under way with Airbus. Kinotex sensors are also used for safeguarding elderly dementia patients by including it in mattresses so that nursing staff can be warned if patients leave their beds or even monitor their night activity. Additionally, the Kinotex technology is applied to touchpad character recognition projects. According to Winfried Bindges, Managing Director of the Kinotex Sensors GmbH, the potential for technology transfer is vast: “Space technology surely brings an impulse for innovation to the non-space industry.” The challenge is to make potential innovative entrepreneurs aware of the possibilities. With the European Technology Transfer Conference, ESA’s Technology Transfer Office wants to show more of these successful examples to spark the inspiration and inventiveness of companies to use space technology and to bring experts together, explains Salzgeber. “The innovations already exist, we just have to use them.” ■

RELATED LINKS:

www.estt-conference.com
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INTERNATIONAL SPACE EXPLORATION CONFERENCE TO UNITE EUROPE'S DECISION MAKERS

EXPLORATION FOR EUROPE'S PROGRESS

Space exploration has long emerged from the shadows of science fiction and became a tangible reality inciting man's vision and relentlessly driving technology development and science forward all over the world. It is a large scale societal project, welding together nations around the globe by working together to feed the insatiable human quest for knowledge, exploring the unknown and pushing scientific, technological and societal progress. Europe is planning ahead for the future and developing a long-term strategy for space exploration, which provides perspective and orientation for future European investments in space exploration. The underlying principle of the European strategy is to implement space exploration as a global and societal project contributing to technology innovation.

At the International Space Exploration Conference (ISEC), taking place 8-9 November 2007 in Berlin, the European Space Agency (ESA) and the German space agency DLR not only want to offer

an opportunity to learn more about space exploration and better understand the driving force behind this societal project and introduce the benefits of space exploration to European society at large, but also its challenges to European industry and its unique opportunities of technological and scientific progress to benefit all mankind. During ISEC, ESA and DLR want to conjure up a vivid picture of the history, present and future of one of the most forward-looking, ambitious and inspirational

projects of our century and want to set forth the fascination, the inspiration and the opportunities that space exploration has in store for Europe.

RELATED LINKS:

<http://www.congrex.nl/07a04/>



An artist's impression on human space exploration

WORLD LEADING INSURANCE BROKER MARSH JOINS CO-OPERATION AGREEMENT

INSURANCE FOR SPACE PROJECTS

Marsh and Company, the world's leading insurance broker and strategic risk advisor, joined the European Space Agency's Co-operation Agreement Industrial Partners. The Co-operation Agreement assembles a

group of private enterprises that joined forces to support companies that want to utilise the International Space Station (ISS) for industrial Research and Development. To help customers make their project commercially feasible, the Co-operation Agreement Industrial Partners provide access to ground-based facilities, technical support for experiment

MARSH

hardware development and other services for reduced prices. Those services, which are needed for any project that requires flying a payload to the ISS, and legal services, have now been expanded by the insurance and risk services of Marsh.

"Marsh joining the Co-operation Agreement is a milestone for our goal of facilitation industrial research on the ISS", explains David Fachiri, ESA's project manager for the Co-operation Agreement Industrial Partners. "Offering comprehensive services to help interested companies to realize their space research is an essential step towards opening up the ISS to significant commercial use. We are happy to welcome Marsh as a key element in our Co-operation Agreement services portfolio."

