ARIADNA NEWSLETTER
JUNE 2006
http://www.esa.int/ariadna

ARIADNA NEWS: CALL FOR PROPOSALS 06/01 RELEASED

Due to the success of the **Call for Proposals** in the last three years, the Advanced Concepts Team decided to strengthen the collaboration with universities. Instead of one larger call, two smaller calls for proposals will be released per year! The first call for 2006 is now open with a list of eight study topics. Details of all these and how to submit a proposal are available at: - Ariadna open calls

Solicited Studies For CFP 06/01: -

06/1301 **The Gravitomagnetic London Moment**, Type of activity: Medium Study (4 months, 25 KEUR)

06/3101 **Advanced Injectors for Chemical Rockets Inspired by Ink-jet Printing Technology**, Type of activity: Medium Study (4 months, 25 KEUR)

06/3201 **Advanced Ceramic Fibers and Matrices: Hafnium Carbide Composites**, Type of activity: Medium Study (4 months, 25 KEUR)

06/4101 **Global Trajectory Optimisation: can We Prune the Solution Space when Considering deep Space Manoeuvres?**, Type of activity: Extended Study (6 months, 35 KEUR)

06/6201 **Attaching Mechanisms and Strategies Inspired by Spiders' legs**, Type of activity: Extended Study (6 months, 35 KEUR)

06/6301 **Bio-inspiration from Plants' Roots**, Type of activity: Medium Study (4 months, 25 KEUR)

06/9401 **Active Coating for Position and Attitude Control**, Type of activity: Medium Study (4 months, 25 KEUR)

06/9501 **Microstructured Radiators**, Type of activity: Short Study (2 months, 15 KEUR)

ACT CAREER OPPORTUNITIES

The ACT is currently looking for a post-doctoral research fellow in the field of:

- Nanotechnology

For more details on this position and how to apply, please visit: ACT opportunities

SPACE TECHNOLOGY NEWS

Periodically the European Space Agency issues Invitations To Tender (ITTs) on a broad range of subject areas and activity types, ranging from scientific and technical studies, to technology development activities or even basic infrastructure support services. A list of both the intended and currently open ITTs can be accessed at http://emits.esa.int/. Below, is an (incomplete) selection of those that could be of particular relevance to universities and academic researchers:

Design, Development And Test Of A Mini Ion Engine System
At low altitudes it has to be take account that the robust ion engine design and inert xenon propellant are little affected by environmental and atmospheric effects such as atomic oxygen. A miniaturised thruster will be designed using scaling relationships to demonstrate performance of the new system; identification and trade-off of potential Miniaturised Electric Propulsion System (MEPS) capabilities will be performed, establishing of power converter and control requirements shall be made, and a breadboard system design will be defined to encompass required performance over a range of applications. A breadboard system shall be manufactured. Tender Status: Issued. Price Range: 200-500 KEUR. Responsible: Mr. Saccoccia. More Information at: AO5168

Remote Monitoring And Control Of Complex Systems
There are different situations in which it may be necessary to monitor and control remotely the behaviour of complex software systems composed of several machines and tasks running in parallel. The aim of this activity would be the design of a control system based on current infrastructure (SCOS-2000) to be used for the monitoring and control of other systems, such as separated science data processing systems, or multi-mission systems. Tender Status: Issued. Price Range: 200-500 KEUR. Responsible: Mr. Peccia. More Information at: AO4984

Tomorrow's Bird: A View At The Future Of "Commercial" Spacecraft For The Next Generation Launchers
To assess possible technologies, architectures, missions of a future generation of commercial spacecraft in a time frame 2015-2025. The study shall be based on the following major work packages: assessment of possible scenarios for the evolution of commercial satellites missions in a time frame 2015-2025, assessment of technology

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trends and solutions for the platform subsystems and payload, conceptual design of possible commercial platform architectures based on the previous technology choices, assessment of advanced operations concept(s) compatible with the identified platform and payload solutions, identification of preliminary requirements and interfaces for the Next Generation Launcher. Tender Status: Issued. Price Range: 200-500 KEUR. Responsible: Mr. Ongaro. More Information at: AO5131

Optical Flow Navigation Systems For Landing
The operation of the proposed visual navigation system is based on real time determination of the 3D digital elevation model of the approached surface and it's matching with the reference 3D model of the landing site. To reach the real time performance both the optical flow determination and the 3D models matching can be performed with an onboard optical-correlator. Within the study it is proposed to develop the detailed concept of the navigation system, to prove its feasibility by simulation and to estimate expected system performances, mission constrains and hardware requirements. Tender Status: Issued. Price Range: 100-200 KEUR. Responsible: Mr. Ongaro. More Information at: AO5126

High Conductivity Carbon Fibre Reinforced Polymers
For solar panels, efficient cooling is required to maintain photovoltaic efficiency. Replacement of normal CFRP (Carbon Fiber Reinforced) by high conductivity CFRP allows better cooling and so a higher PV efficiency when using concentration. Different core materials have to be assessed: Aluminum, C/C, etc. in various sizes and thickness to check the compatibility of the different materials. The present proposal focuses on developing low weight, high thermal conductivity sandwich panels for specific high value application in satellites. Tender Status: Issued. Price Range: 200-500 KEUR. Responsible: Mr. Dunn. More Information at: AO5016

CONFERENCES ANNOUNCEMENT

The ACT together with the Artificial Intelligence group of JPL and the Department of Computer Science of the University of Texas at El Paso is organizing the workshop "**Artificial Intelligence for Space Applications**" at the International Joint Conference on Artificial Intelligence (IJCAI) to be held in Hyderabad, India in January 2007. The workshop is intended to stimulate the discussion between the artificial intelligence and the space engineering communities and benefit both. The topics of interest for the workshop will include, but are not limited to: swarm intelligence, planning and scheduling, automated space system design, onboard situation awareness, spacecraft autonomy. More information at: ACT and IJCAI

The Old Royal Naval College organizes the **7th International Conference On Dynamics and Control of Systems and Structures in Space (DCSSS) 2006.** The prime aim of the conference is to focus on emerging areas and real applications across the spectrum of systems and structures, ranging from small satellites to very large space structures and distributed systems. Areas of particular interest are formation flying, collaborative swarms, microsystems, smart structures, and micropointing.
More information at: http://www.dcsss.org/

The European Space Agency is pleased to announce the International Workshop on "**Advances in Precision Tests and Experimental Gravitation in Space**". The event will take place at the Galileo Galilei Institute, Arcetri, Firenze - Italy, on the 28-30 September 2006.
The workshop is intended to present recent results and advances in precision instruments and tests of fundamental laws of physics, discuss how ground-based experiments can be extended into space missions, present new ideas and proposals, encourage international collaborations.
More information at: http://www.fi.infn.it/GGI-grav-space/egs_w.html

ESA, DLR and CNES are organizing this year in Autumn, the **3rd International Workshop on Astrodynamics Tools and Techniques.**
The workshop gives an overview of different tools and techniques in astrodynamics. In addition, specific astrodynamics problems are presented which can be solved using desktop tools and astrodynamics techniques for quick desktop calculations are also shown.
More information at: http://www.congrex.nl/06c30/

ARIADNA IN SHORT

With Ariadna, ESA intends to strengthen the bond between Academia and ESA by providing opportunities to work in partnerships and making up-to-date information available on on-going ESA studies and advanced space technology news relevant to the academic world. Check http://www.esa.int/ariadna for news or updates on coming Ariadna call for Proposals.

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