



ACT NEWS

Recruitment

The ACT is offering 4 new Research Fellow positions at post-doc level in the fields of

- [Advanced Renewable Energy Systems & Wireless Power Transmission](#),
- [Fundamental Physics](#),
- [Artificial Intelligence](#), and
- [Biomimicry](#).

First application deadline: 9 January 2013. Interested candidates, please find more information [here](#).

ACT 10 Years Event “Thinking Tomorrow”

In July 2-3 the ACT has celebrated its 10-years anniversary with a two days special event “Thinking tomorrow” at ESTEC, including Europe's first space un-conference. More information, all presentations, some photos and videos can be found [here](#).

Relativistic two spinning body problem solved

Using a special technique recently developed for celestial mechanics and practically unknown in relativity, ACT researchers have analysed and solved exactly, for the first time, the problem of motion of two orbiting spinning bodies considering all the most relevant relativistic corrections.

GTOC

The ACT obtained the second place in the latest GTOC competition, beaten only by a team of the Universities of Turin and Rome. (more information [here](#))

[All ACT Publications](#)

GENERAL ESA NEWS

Invitations to Tender (ITTs)

The European Space Agency periodically issues Invitations to Tender on a broad range of subject areas and activity types. A list of both upcoming and currently open ITTs can be accessed at [EMITS](#).

Some potentially interesting studies for universities include:

- [AO7359](#) Requirements and Concepts for IOD Missions for Breakthrough Concepts

ACT PERSONNEL

While Alexandre Kling, Duncan Barker, Helia Sharif, Maria Zaretskaya, Luke O'Connor and Simona Martana left the team, we welcome our new colleagues:

Annalisa Riccardi, Francisco Fernández-Navarro, Isabelle Dicaire, Matthias Gerstgrasser, Wiktor Piotrowski, Christos Vezyris and Zivile Dalikaite.

Current ACT team members are Aurélie Héritier, Camilla Pandolfi, Dejan Petkow, Guido de Croon, Johannes Simon, Marcus Märtens, Sante Carloni, Veronica Ramos, Annalisa Riccardi, Francisco Fernández-Navarro, Isabelle Dicaire, Matthias

Gerstgrasser, Wiktor Piotrowski, Christos Vezyris, Zivile Dalikaite, Dario Izzo and Leopold Summerer ([all ACT members](#)).

ARIADNA NEWS

Recently started Ariadna Studies

The ACT has teamed up with universities to study further the following new research topics:

- Scent of Science: Autonomous Source Localization for Exploration with [Carleton University](#)
[Study description](#), [project site](#)
- Subsurface investigation and interaction by self-burying bio-inspired probes (12-6401) with [Univ. of Florence](#), (Dep. of Plant, Soil and Env. Science)
[Study Description](#), [project site](#)
- Kinetic modelling of the jet extraction mechanism in spherical IEC devices (12-3201) with [Univ of Stuttgart](#)
[Study Description](#), [project site](#)
- Probabilistic Computing for Efficient Robotic Vision in Space (12-5101) with [Carleton University](#)
[Study Description](#), [project site](#)
- Mimicking the thigmotropic behaviour of climbing plants to design a tactile-based grasping device for the space environment (12-6402) with [Univ. of Bozen-Bolzano](#)
[Study Description](#), [project site](#)
- Space Gaits (12-5201) with [Nat. Techn. Univ. of Athens](#)
[Study Description](#), [project site](#)

Recently finished Ariadna Studies

- Analogue Transformational Acoustic: An Alternative theoretical framework for acoustic metamaterials (11-1301a; 11-1301b) with [Imperial College of London](#) and [Universidad Politecnica de Valencia](#)
[Study description](#), [final presentations](#)

On September 19-21, the team organised together with the university of Ljubljana the first international workshop on “Relativistic Positioning Systems And Their Scientific Applications”, including presentations of results from 4 years of ACT research on this topic. ([link](#))

[ACT Youtube channel](#) with Ariadna executive presentations

UPCOMING CONFERENCES AND EVENTS

European University students have opportunity to participate in various ESA conferences and workshops in space-related fields around the world. The first opportunities of 2013 ESA conferences have now been posted [here](#). ESA conferences: <http://conferences.esa.int>

Merry Christmas a Happy New Year from all of us

About the ACT: The aim of ESA's Advanced Concepts Team is to perform, monitor and foster research on advanced space systems, innovative concepts and working methods.