

## Vacancy Notice

### Internal Research Fellow in Fundamental Physics

The European Space Agency's Advanced Concepts Team (ACT) is looking for highly motivated young researchers in the area of fundamental physics, with good analytical and communicational skills and an excellent aptitude for teamwork.

#### The Team

The Advanced Concepts Team (ACT) is a group of research fellows (post-docs) and young graduates who originate from a broad variety of academic fields and aim at an academic career. The team's task is to monitor, perform and foster research on advanced space systems, innovative concepts and working methods. It interacts externally almost exclusively with academia and operates as a truly interdisciplinary team bound to high scientific standards. Via its research, the team acts as a cross-departmental pathfinder to explore novel, potentially promising areas for ESA and the space sector, ranging from applied to basic fundamental topics. The team is in constant evolution and attempts to lead and embrace changes and new trends. Each member is therefore encouraged and expected to contribute and suggest changes.

Internally, the Advanced Concepts Team acts as the technical think-tank within the Director General's Policy Office. Thus, an important task of the team is to communicate scientific trends and results, as input to the strategic planning of the Agency.

The team has been active in the field of fundamental physics since several years and interested candidates are invited to get familiar with these projects (<http://www.esa.int/gsp/ACT/phy/index.htm>), while being encouraged to expand the domain to new interesting fields not yet covered.

#### Duties and Tasks

Successful candidates will perform research in theoretical physics and will in particular carry out the following tasks:

- Assess and investigate concepts and effects, either current or foreseen, derived from novel theoretical or experimental discoveries in physics for their potential application and use in space systems.
- Propose and perform high-level research in the field of physics together with universities of ESA member states (in particular through the *Ariadna* programme [www.esa.int/ariadna](http://www.esa.int/ariadna)).
- Lead and assist interdisciplinary projects with other ACT Research Fellows in topics where the above-mentioned areas of physics play an important role.
- Participate, with the rest of the team, in the assessment of proposed space system concepts - these not being restricted only to the area of fundamental / theoretical physics - and propose new concepts and assessment studies.
- Perform or participate in small studies on subjects of strategic interest to provide in-house expertise to ESA's Director General's Policy Office and its General Studies Programme.
- Follow and monitor the progress of research in areas of physics of interest to the team in order to derive and report strategic trends.

- Critically assess ideas and concepts for space systems relying on methods or phenomena of the area of fundamental physics that are brought to the attention of the ACT.

Areas of research are partly chosen by the successful candidate based on his/her own expert judgements and insight into trends and developments in fundamental physics, partly chosen by the team as to follow strategic directions of the Agency. Based on past and current assessments, ACT areas of research in fundamental physics include condensed matter physics, quantum physics and applications of Bose-Einstein condensates and gravitation, but candidates are encouraged to expand these.

## **Qualifications**

The candidate should hold a degree in Physics, Mathematics or Aerospace Engineering. He or she should also have completed (or be about to complete) a PhD in Physics (with the subject of the thesis being relevant to the description of the tasks outlined above) and aim at an academic/research career.

The candidate is expected to bring to the team functioning links to universities and research institutes. The candidate should demonstrate an interest in space science and / or technology as well as the ability and interest to get actively involved in prospective interdisciplinary research.

Successful candidates are expected to show an aptitude to contextualise specialised areas of research and to quickly assess their potential with respect to other domains and applications. An avid, natural curiosity and a passion for new subjects and research areas are essential. As member of an interdisciplinary, multicultural team of peers, the candidate should have a natural aptitude to teamwork, while being able to set-up, follow, monitor and be responsible for his/her own personal research plans and directions. Good methodological and organisation skills are therefore a valuable asset.

## **Application**

Information on the ESA Research Fellowship Programme and the application form are available at: [www.esa.int/SPECIALS/Careers at ESA/SEM19DXO4HD\\_0.html](http://www.esa.int/SPECIALS/Careers_at_ESA/SEM19DXO4HD_0.html).

Applicants should send their CV, a covering letter stating their research interests and the filled-out RF application form to: [act@esa.int](mailto:act@esa.int) as well as [temp.htr@esa.int](mailto:temp.htr@esa.int). (if not possible by email, the four reference letters can also be sent via normal mail to: ESTEC HR Division, RES-HTR, ESA/ESTEC; Keplerlaan 1, PO Box 299, 2200AG Noordwijk ZH, The Netherlands).

The general eligibility criteria of the ESA Research (Internal) Fellowship Programme apply.

All applications will be considered until the available post is filled. Application deadline for this round of interviews: no later than May 31, 2010.

For more information please visit: ESA: [www.esa.int](http://www.esa.int), the Advanced Concepts Team: [www.esa.int/act](http://www.esa.int/act) or send us an email to: [act@esa.int](mailto:act@esa.int)