

Vacancy Notice

Internal Research Fellow in Plasma Physics and Advanced Propulsion

The European Space Agency's Advanced Concepts Team (ACT) is looking for highly motivated young researchers in the area of plasma physics and advanced propulsion, 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 advanced propulsion physics for several years and interested candidates are invited to get familiar with these projects (<http://www.esa.int/gsp/ACT/pro/index.htm>), while being encouraged to expand the domain to new interesting fields not yet covered. The team has not been active in the specific field of plasma physics though some of the research on advanced propulsion has been closely related.

Duties and Tasks

Successful candidates will perform research in plasma physics and advanced propulsion concepts and will in particular carry out the following tasks (balance between these to be agreed with the successful candidate):

- Propose and perform high-level research in the fields of plasma physics and advanced propulsion physics, partially together with universities of ESA member States and cooperating States (in particular through the *Ariadna* programme www.esa.int/ariadna). These include in particular but are not restricted to the modelling of high-energy plasma and particle fields and concepts and technologies emerging from nuclear fission and fusion research.
- Assess and investigate advanced propulsion concepts and technologies that are still beyond the horizon of the core technology programmes of the Agency and critically reviewing ideas usually categorised under “breakthrough propulsion concepts”.
- Lead and assist interdisciplinary projects with other ACT Research Fellows in topics where the plasma physics and propulsion systems 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 plasma physics and advanced propulsion systems - 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 plasma physics and advanced propulsion of interest to the team and the Director General's Policy Office in order to derive and report strategic trends.

Specific areas of research are partly chosen by the successful candidate based on her/his own expert judgements and insight into trends and developments in plasma physics and in advanced propulsion, partly chosen by the team as to follow strategic directions of the Agency. Based on past and current assessments, ACT areas of research in advanced propulsion systems include nuclear thermal propulsion, nuclear fusion propulsion, advanced electric propulsion systems (e.g. 4-grid thrusters, helicon thrusters, throttlable thrusters derived from ink-jet technology), but candidates are encouraged to expand these (e.g. laser propulsion, advanced chemical propulsion concepts ...).

Qualifications

The candidate should hold a degree in Physics, Mathematics or eventually Aerospace Engineering. She or he should also have completed (or be about to complete) a PhD in Physics or Aerospace Engineering (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.

Applicants should send their CV, a covering letter stating their research interests and the filled-out RF application form to: act@esa.int as well as 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 17, 2010.

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