

**Senior Researcher**  
**Director of the Space Advanced Concepts Laboratory (SAC Lab)**

**Context**

As a world leader in aerospace engineering higher education and research, ISAE-SUPAERO offers a complete and unique range of high level postgraduate education programs, including the program “Ingénieur ISAE-SUPAERO”, the CNAM-ISAE aerospace engineering apprenticeship program, the Aerospace Engineering Master of Science (MSc), sixteen (16) advanced specialization masters programs and six (6) Doctoral schools (PhD programs).

ISAE-SUPAERO has developed a multidisciplinary research strategy resolutely focused on answering the future needs of the aerospace industry and other related high technology sectors. Close collaboration with industry is reflected in the Institution's ongoing commitment to developing education and research chairs in strategic fields, as well as in the many industry professionals who contribute as lecturers to ISAE-SUPAERO's education programs, keeping students attuned to the latest technological innovations, the updated industrial issues and the best industrial practices.

In particular, ISAE-SUPAERO and its industrial partners Airbus and ArianeGroup have created a Research Chair in order to support the development of a laboratory on Space Advanced Concepts.

Regarding international academic partnerships, ISAE-SUPAERO is an influential member of the T.I.M.E and PEGASUS networks and cooperates with the best international universities: European universities (TU Munich, TU Delft, ETSIA Madrid, Politecnico Torino et Politecnico Milano, KTH Stockholm, Imperial College, Cranfield), North American institutions (CalTech, Stanford, Georgia Tech, UC Berkeley, EP Montreal), Swiss institutions (EPFL, ETHZ), Latin American and Asian universities.

The ISAE-SUPAERO academic community includes 100 permanent ISAE-SUPAERO professors and researchers, 200 non-permanent scientific ISAE-SUPAERO professionals (researchers, post-doctorate, engineers, PhD students, etc.), 360 other researchers and PhD students from other neighboring institutions on the campus, 1800 lecturers from the industry, for approximately 1700 ISAE-SUPAERO students on the campus. Every year, over 30% of the Institute's graduates are international students, and the alumni network includes over 17000 graduated former students.

ISAE-SUPAERO's Department of Aerospace vehicles Design and Control (DCAS) conducts research and education activities related to the development of engineering models, methods and tools for the design of aerospace vehicles and for the design of control systems for those aerospace vehicles and systems. The DCAS conducts its own research on its specific themes and is involved in numerous European or national research projects, and notably also in multidisciplinary research and innovation thematic actions within ISAE-SUPAERO.

DCAS researchers are organized in three research groups:

- Aerospace vehicle design (7 research faculty, 12 research engineers and post-doctoral students)
- Decision and Control (5 research faculty, 8 research engineers or post-doctoral students)
- Neuro-ergonomics and human factors (5 research faculty, 11 research engineers or post-doctoral students)

The DCAS houses the Space Advanced Concepts Laboratory (SAC Lab) of the research chair on Space Advanced Concepts supported by AIRBUS and ARIANEGROUP.

The research topics developed in the Space Advanced Concepts Laboratory of ISAE-SUPAERO are focused on various issues and challenges for future space systems (within the next 15 years) including space debris management, autonomous navigation missions towards asteroids, in-orbit servicing for telecommunication satellites, space traffic management, and the architecture of inhabited space stations on the surface of the Moon or Mars.

Using a systems engineering approach and developing space systems design software packages, which integrate already existing tools developed in the DCAS department, the research topics explored in the SAC Lab concern the following points: adaptation and/or development of design methods with a specific focus on interface management, architecture of large structures for inhabited exploration missions, formalization of trajectories and attitude control from launch phase to rendezvous phase on LEO, GEO, and orbits about Lagrangian Points.

In this context, ISAE-SUPAERO is recruiting an experienced Senior Researcher to be in charge, as a scientific director, of the Space Advanced Concepts Laboratory (SAC Lab) for a period of 3 years in the context of the Space Advanced Concepts Chair.

### Missions

The position holder is responsible for the scientific development and the operational management of the Space Advanced Concepts Laboratory, in close collaboration with the Associate Professor in charge of the Space Advanced Concepts Chair. She/He is involved in Research and Education activities related to Space Systems Engineering at DCAS. She/He works in coordination with ISAE-SUPAERO scientific professionals, professors, researchers, engineers and professionals of the technical groups of ISAE-SUPAERO, with their various competences (propulsion, mechanics, electronics, instrumentation, embedded systems, etc.).

Specifically, its missions are as follows:

- To promote and implement space advanced concepts;
- To look for funding and financial supports for research resourcing;
- To supervise student projects (on topics such as micro-launchers, nanosatellites, etc.);
- Eventually, to propose evolutions in education programs;
- To supervise and co-supervise ISAE-SUPAERO PhD students;
- To valorize research through communications and publications in top ranked journals.

### Profile

The position holder has excellent research track records in domains related to space system engineering or space system architecture (Launch systems or orbital systems). She/He has a PhD and can supervise PhD students (HDR, Professor or equivalent qualification).

The applicant should have a significant experience in the management of research programs and/or in the scientific direction of a laboratory. She/he should be able to propose and lead European research projects in accordance with the research activities of the DCAS department and ISAE-SUPAERO.

The position holder will have the opportunity to make propositions with respect to evolutions of its activities and/or responsibilities. Fluency in written and spoken English is required. The candidate is open-minded, curious, comfortable and at ease in teamwork, with pedagogical skills and enthusiasm for being in contact with ISAE-SUPAERO students in engineering, master and doctoral programs.

### Application process

Applications should include a brief research program, a detailed resume including a list of publications, and the names and addresses of at least three references. Beyond the deadline for application reception below, ISAE-SUPAERO keeps the right to accept applications until the position is filled.

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### Addresses for application:

E-mail : [recrutement-isae@isae.fr](mailto:recrutement-isae@isae.fr)  
 or by surface mail :

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**Deadline for application reception: 17th December 2017**