* À renvoyer à Anne Tanguy ([Anne.Tanguy@onera.fr](mailto:Anne.Tanguy@onera.fr))

**Demande de financement pour une aide à la mobilité sortante**

|  |  |
| --- | --- |
| **Axe de PSIA2 concerné :**   * + - Axe 1     - Axe 2     - Axe 3 | **Niveau du demandeur :**   * + - * Doctorant(e)       * Post-doc       * Personnel permanent |

**1. Identification du demandeur**

Nom-Prénom du demandeur :

Si Personnel permanent, préciser le statut :

Unité de recherche et établissement du demandeur :

Thème de l’OI PSIA2 concerné par la demande (barrer les mentions inutiles):

Combustion-Energie / Fluides-Structures-Matériaux / Commandes-Systèmes / Formation / Valorisation

E-mail :

Tél. :

**2. Type de candidature associée**

**A. Pour une thèse**

Titre de la thèse :

Organisme finançant la bourse de thèse :

Début et fin de la thèse :

Directeur de thèse (à mettre en copie de la demande) :

Projet COTE associé (si c’est le cas):

**B. Pour un post-doc**

Titre du post-doc :

Organisme :

Début et fin du contrat :

Projet COTE associé (si c’est le cas):

**C. Pour un projet hors thèse/post-doc:**

Titre du projet :

Organisme :

Dates du séjour :

Cofinancements :

**3. Demande d’aide à la mobilité sortante**

**Organisme d’accueil :**

**Pays :**

**Nom /mail / du réfèrent dans la structure d’accueil :**

**Justifier le choix du laboratoire d’accueil :**

**Décrire le programme de travail pendant la période d’accueil :**

**Date du séjour :** du XX/XX/XXXX au YY/YY/YYYY (2 mois minimum)

**Montant de la demande (500 € max.) :**

**Annexe : Liste des unités de recherche partenaires de l’Institut PSIA2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Surname and**  **name of contact person for OI** | **Laboratory/Team name** | **Faculty members and PhD/Posdoct participating in the project** | **Comments – Research activities**  **related to Ψ-IA2** |
| Jean-Philippe RENAULT | CPPS - Fédération de Chimie p  Physique Paris-Saclay | 10 fac. members and 5 PhD and Postdoc | Fast kinetics  Combustion chemistry  Surface chemistry |
| Olivier MARQUET | DAAA - Departement d'Aérodynamique, Aéroélasticité et Acoustique, ONERA | 4 fac. members and 2 PhD and Postdoc | Aerodynamics  Aeroelasticity  Acoustics  Shape optimization  Aircraft concept studies |
| Leila KLOUL | DAVID - Données et Algorithmes pour une Ville Intelligente et Durable | 1 fac. member and 1 PhD | Safety Analysis, Formal Modeling techniques, Maintenance |
| Frédéric LAURIN | DMAS - Département Matériaux et Structures - ONERA | 10 fac. members and 30 PhD and Postdoc | Development of metallic materials and coatings for turbomachinery and space systems  Development of ceramic matrix and ceramic composites for high temperature aerospace applications  Durability  Behavioral laws  Estimation of service life  Design optimization  Numerical materials  Test-calculation dialogue  Virtual Testing data mining and machine learning |
| Joël DUPAYS | DMPE – Département Multi-Physique pour l’Energétique | 40 fac. Members and 10 PhD and Postdoc | Propulsion/Energie  Fluides/Structures/Matériaux |
| Claudine BESSON | DOTA (ONERA/DOTA) - Département Optique et Techniques Associées | 20 fac. members and 5 PhD and Postdoc | Development of new optical sensors for the characterization of: soot, ice crystals (emission)  Development of new passive and active optical sensors for the detection and quantification of gases  Development of new optical sensors for the characterization of contrails, for the detection of turbulence, including clear sky turbulence  Development of airborne measurements  Atmospheric radiative transfer, optical properties of ice crystals |
| Hélène PIET-LAHANIER | DTIS - Département Traitement de l'Information et systèmes de l'ONERA | 10 fac. members and 10 PhD and Postdoc | Control / Systems |
| Sébastien DUCRUIX | EM2C - Laboratoire Energétique Moléculaire et Macroscopique, Combustion | 40 fac. members and 40 PhD and Postdoc | Combustion, gas radiation, plasmas, heat transfers;  Numerical simulations, diagnostics, theory, modeling;  Propulsion, atmospheric re-entry, combustion instabilities, decarbonized energy, hydrogen, reduction of polluting emissions, reduction of noise emissions. |
| Lamine HATTALI | FAST - Fluides, Automatique et Systèmes Thermiques | 4 fac. members | Our lab develops activities along the following lines:  - Flexural quasi-static and fatigue behaviours of fused filament deposited,  - Interfacial fracture toughness: measurement in both steady state and transient regimes using four-point bending test,  - Assessment of non-uniform residual stress field of the thermal sprayed stainless steel coatings on aluminium substrates,  - Profilometers for multi-scale surface characterization,  - Brittle fracture. |
| Bruno ROBERT | I2BC - Institut de Biologie Intégrative de la Cellule | 8 fac. members and 8 PhD and Postdoc | Terpene production by cyanobacteria bioengineering  Production of solar fuels by photocatalysis |
| Dalil ICHALAL | IBISC - Informatique, BioInformatique, Systèmes Complexes | 11 fac. members and 4 PhD and Postdoc | The aeronautics and space activity within the team focuses on issues of modeling, control, observation, perception, planning and generation of trajectories and fault tolerant diagnosis and control applied to :  1- autonomous drones for the surveillance of engineering structures, parcel delivery or precision agriculture: this activity raises theoretical issues on the control of a fleet of drones requiring new methodologies combining approaches of classical automation with communication networks between drones (networked controlled systems).  2- Airships for freight transport: this application aims to bring more autonomy to airships through modeling, control/command and trajectory planning  3- Reusable rockets: This activity aims to design a demonstrator of a rocket whose propulsion stage can land and be used for other launch missions.  4- Multimodal perception by unconventional vision (visual odometry, SLAM). |
| David AITKEN | ICMMO - Institut de Chimie Moléculaire et des Matériaux dOrsay | 10 fac. members and 10 PhD and Postdoc | Hybridization/electrification of aircraft (batteries, supercapacitors)  alternative fuels  synthesis of temperature resistant polymer materials, composites, surface modification and functionalization  Microstructure and texture control in relation to thermal and thermomechanical treatments (Ni-based superalloys, Titanium alloys...)  Additive manufacturing (Titanium, Superalloys...)  Relation between microstructure and mechanical and magnetic properties of alloys |
| Joël LEMAIRE | ICP - Institut de Chimie Physique | 2 fac. members | Development of transportable mass spectrometers for the measurement of emissions in real time (currently implemented in the automotive field), either for the characterization of engines or in confined environments. |
| Vincent CORREIA | IDEST – Institut Droit, Espaces, Technologies | 3 fac. members | Droit, Economie, Politique |
| Thanh Duc MAI | IGPS - Institut Galien Paris Saclay | 1 fac. members and 1 PhD and Postdoc | Instrumental conception and development of new technologies for analytical sciences, with focus on:  1) New designs of microscale electrophoresis for separation of target analytes  2) Microfluidics and droplets for sample processing  3) Modular instrumentation (inspired from Lego-toy concept) |
| David KREHER | ILV - Institut Lavoisier de Versailles | 4 fac. members | - Hybrid materials  - Nanomaterials for energy  - Molecules |
| Sihem TEBBANI | L2S - Laboratoire des Signaux et Systèmes | 9 fac. members and 9 PhD and Postdoc | Aerospace is in the interest of several studies carried out within the L2S, among the three research fields of the laboratory: Systems and Control, Signal Processing and Statistics, Networks and Communication.  Among the research topics, we can mention for example:  - Optimization of trajectories and guidance of launchers, UAVs (including UAV fleet), and multi-agent systems.  - Trajectory and attitude control of launchers, satellites, and drones.  - Control, estimation, diagnosis, and fault-tolerant control.  - Vibration control  - Spectral analysis applied to fault detection by vibration analysis for certification or predictive maintenance.  - Location/separation of acoustic sources. |
| Philippe KECKHUT | LATMOS – Laboratoire Atmosphères, Observations Spatiales | 3 fac. members | Climatic effect of contrails |
| Yann LE BOUAR | LEM - Laboratoire d'Etude des Microstructures | 8 fac. members and 4 PhD and Postdoc | Modeling of aeronautical alloys  Electron microscopy characterization (catalytic particles, aeronautical soot, aeronautical alloys)  Nanomaterials |
| Guy André BOY | LGI - Laboratoire Génie Industriel | 2 fac. members and 1 PhD and Postdoc | Système de Combat Aérien du Futur (Conception de Cockpit et de Salle de Contrôle)  Tour de Contrôle Virtuelle  Exploration Lunaire  Intégration Humains Systèmes (Missions Spatiales Habitées et Evolution du Système Aérien) |
| Caroline NORE | LISN - Laboratoire Interdisciplinaire des Sciences du Numérique | 9 fac. members and 7 PhD and Postdoc | learning aircraft vibration environment  aerodynamic sensitivity analysis  energy transfer in turbulent flows (with or without magnetic field)  human-machine haptic interactions  optimization of parallel computations on GPU, and parallelization of Machine Learning algorithms  parallelization of tensor computation to accelerate simulations |
| Luc CHASSAGNE | LISV - Laboratoire d'Ingénierie des Systèmes de Versailles | 1 fac. members | Innovative materials, structural calculation, mechanics, simulation |
| Amer CHPOUN | LMEE - Laboratoire de Mécanique et d'Energétique d'Evry | 4 fac. members | A team works in the field of space propulsion. It is interested in supersonic nozzles via numerical and experimental studies in collaboration with the ICARE Institute of the CNRS in Orleans: Optimization of the internal contour of the nozzle for an optimal performance on the whole trajectory of a mission, self-adapting nozzles of the double-valve type (DBN), control of the transition between different operating regimes....  A second team develops modal type models, associated with thermal problems. As such it has worked on the thermal simulation of electronic equipment in space (for satellites), in collaboration with Thales AléniaSpace. |
| Benjamin GRAILLE | LMO - Laboratoire de mathématiques d'Orsay | 3 fac. members | Simulations in fluid mechanics  Boltzmann methods on network  Optimization |
| Pierre-Alain BOUCARD | LMPS - Laboratoire de Mécanique Paris-Saclay | 15 fac. members and 15 PhD and Postdoc | Mechanics of aeronautics materials and structures,  Fine experimentation, non destructive testing  Numerical modeling, HPC for mechanics  Noise reduction and vibration  Modeling of 3D interlock weaving and 3D interlock fabrics  Structural and multi-functional composites (long fiber carbon or glass), conductive paint |
| Christophe CHALONS | LMV - Laboratoire de Mathématiques de Versailles | 2 fac. members | Modeling and simulation of two-phase flows  Modeling and simulation of rarefied flows at high altitude  Modeling and simulation of two-phase flows  Modeling and simulation of rarefied flows at high altitude |
| Didier HAUGLUSTAINE | LSCE - Laboratoire des Sciences du Climat et de l'Environnement | 3 fac. members and 3 PhD and Postdoc | Impact of aviation on the environment. Air quality. Climate.  Nitrogen oxides and ozone in the upper troposphere.  CO2 emissions and carbon balance |
| Charyar MEHDI-SOUZANI | LURPA - Laboratoire Universitaire de recherche en production | 4 fac. members | Development of the digital twin product or/and process for the assembly of large flexible assemblies.  Development of robotized measurement on production line.  Integration of the measurement in the production line for the development of predictive model for the control of the quality through the analysis of the data and the retro-control of the process. |
| Frederic MAGOULES | MICS - Laboratoire Mathématiques et Informatique pour la Complexité et les Systèmes | 5 fac. members and 3 PhD and Postdoc | Mathematics / High Performance Computing / Computer Science  Modeling, Analysis, Scientific Computing, Numerical Simulation  Theoretical analysis, Numerical analysis, Statistical AI (Artificial Intelligence),  Acoustics, Vibro-Acoustics, Structural Mechanics |
| Véronique AUBIN | MSSMat - Laboratoire de Mécanique des Sols, Structures et Matériaux | 6 fac. members and 10 PhD and Postdoc | Non destructive testing  Noise reduction and vibration  Modeling of 3D interlock weaving and 3D interlock fabrics  Structural and multi-functional composites (long fiber carbon or glass), conductive paint |
| Samir BOUAZIZ | SATIE - systèmes et applications des technologies de l'information et de l'énergie | 4 fac. members | Artificial Intelligence for predictive maintenance: evaluation of the remaining life time for certain equipment, in order to reduce the ecological footprint of this industry.  Artificial Intelligence for "Optimized flight performance",  Training and education,  Proposal of a path linked to external aerodynamics and oriented towards digital simulation (with the "distributed point sources method" (DPSM). |
| Fanny BALBAUD-CÉLÉRIER | SCCME - Service de la Corrosion et du Comportement des Matériaux dans leur Environnement | 6 fac. members and 3 PhD and Postdoc | Corrosion of materials in severe environments: high pressure, high temperature, aggressive environments  Development of thermodynamic databases on high temperature materials  Numerical design of innovative materials by thermodynamic approach |
| Vadil DEZANNEAU | SPEC - Service de Physique de l'Etat Condensé | 7 fac. members and 8 PhD and Postdoc | Fundamental aspects of turbulence, in relation with atmospheric, climatic, geophysical and astrophysical models  Experimental, numerical and theoretical studies on turbulence and its application to energy dissipation  Study of the oscillating heat pipe as a heat exchanger for microgravity components  Physics of boiling, in particular, in space  Study and development of new (meta)materials that are ultralight and resistant to deformation and fracture |
| Guilhem DEZANNEAU | SPMS - Structures, Propriétés et Modélisation des Solides | 2 fac. members and 2 PhD and Postdoc | Hydrogen: we have been testing and working for 20 years on the formulation, shaping and analysis of fuel cell materials. Within the framework of the development of the hydrogen aircraft, we can work on the development of fuel cells for the new hydrogen-powered APUs. Contacts have been made with SAFRAN TECH on this subject.  Piezoelectrics: we are also working on the development of piezoelectric sensors and transducers. These can be used as sensors or energy sources for control systems. We are also working on the development of high temperature dielectrics for embedded electronics. |