



Junior Scientist (Full-time position)

The main objective of the research activities carried out at the Institute of Propulsion Technology, in the German Aerospace Center (DLR: <http://www.dlr.de/at>), is the improvement of gas turbine technology, for aviation as well as power generation, in close cooperation with industrial and academic partners. Special interest is paid, in all current projects, to the reduction of noise and pollutant emissions.

Over nearly two decades, the Researchers of the Numerical Methods Department have developed the CFD solver TRACE, a turbomachinery-oriented compressible solver, which has become a tool of recognized quality, widely used in both the industrial and academic communities.

The development of new, more efficient designs, which can meet the stringent requirements imposed by the current legislations on CO₂/NO_x emissions, must rely on accurate *integrated* simulations of the entire propulsion system (compressor-combustor-turbine), preferably adopting a unique numerical tool.

In order to reach this objective, the scope of the multi-physics capabilities of TRACE will be further expanded with the implementation of state-of-the-art combustion models. A step of fundamental importance in this process is the development of efficient thermo-chemistry libraries and search algorithms to be incorporated with equal ease and flexibility in both main solver and pre-processing software.

The successful candidate will be responsible in the first instance for the development of the above mentioned libraries and then assist in the implementation of combustion models in TRACE, ranging from the most popular and widely used for industrial design (e.g. Eddy Dissipation Model), to the most advanced closures such as Flamelet Generated Manifolds, with the possibility of gaining a Doctorate (where applicable).

The ideal candidate should have:

- a higher Degree (Diploma/MSc/PhD) in Mathematics, Physics or Engineering
- an excellent knowledge of Thermodynamics, Gasdynamics. Some experience in Combustion Modelling is desirable although not indispensable
- an excellent knowledge of the principles and applications of Computational Fluid Dynamics
- experience in software development, a good knowledge of the Unix/Windows operating systems and of the C/Fortran programming languages

...And be highly motivated and a good team player

Contact

Dr. Francesca di Mare
Deutsches Zentrum für Luft- und Raumfahrt (DLR)
Institut für Antriebstechnik, Numerische Methoden
51147 Köln

Tel. +49 2203 601-3245

Internet www.dlr.de/jobs

Job# 2010/033 KP

