

Promotion

Influence of air modulation on air blast atomization

Several research positions are available to early-stage and experienced researchers in the Marie Skłodowska Curie Initial Training Network MAGISTER (<https://www.utwente.nl/en/et/magister/>), funded by the European Commission under Horizon 2020. MAGISTER is a multi-disciplinary project providing research training in computational fluid mechanics, combustion dynamics, acoustics and machine learning. The research objective is to predict and control accurately the combustion dynamics in a gas turbine engine over the full range of Technology Readiness Levels, by means of the application of machine learning on CFD simulations, laboratory experiments and full engine data.

In this context, a vacancy exists for a PhD position at the Engler-Bunte-Institute, department Combustion Technology (<http://vbt.ebi.kit.edu>).

Job Description

The objectives of this study are:

(I) Design a device for a forced air excitation with the University of Twente, manufacturing the device at KIT and integration of this air forcing device at KIT test rig. (II) Measurements of the unsteady flow field, the droplet dimension and velocity for various air flow speeds, excitation frequencies and excitation amplitudes. These measurements will be performed for 2 air blast nozzles design. The first one will be a generic design and the second one an application oriented design.

The expected results are:

(I) Design of device for forced acoustic excitation of air flows. (II) Quantification of the influence of acoustic air modulation on liquid spray characteristics, e.g. droplet dimensions and velocity, and its dependence on the modulation frequency and amplitude.

Our offer

The successful applicant will be appointed on a 3 year contract.

Requirements

The candidate must be able to demonstrate competence in Fluid Mechanics, Thermodynamics and Heat and Mass Transfer.

Candidates who have not had secondary and tertiary education in English can only be admitted with an IELTS-test showing a total band score of at least 6.5, internet TOEFL test (TOEFL-iBT) showing a score of at least 90, or a Cambridge CAE-C (CPE).

Applicants must satisfy the eligibility rules stipulated by the Horizon 2020 Guidelines of the European Commission. In particular, they must not have performed their main activity in Germany for more than 12 months of the 36 months preceding the position. Early-Stage Researchers must be in the first four years (full-time equivalent) of their research careers, starting at the date of obtaining the degree which would formally entitle them to embark on a doctorate.

MAGISTER Recruitment Strategy

The Recruitment Officer will guide the recruitment procedure following strictly The European Code of Conduct for the Recruitment of Researchers. The vacancies will be announced on the EC “European Researcher’s Mobility Portal”, recruitment webpages, like e.g. www.academictransfer.com or www.findaphd.com, internet fora e.g. www.cfd-online.com, webpages of project beneficiaries and partners, various scientific associations and advertisements on conferences, symposia and scientific events partners attend. A Recruitment Committee under presidency of Recruitment Officer and with included members of Supervisory Board and Project Manager will interview the candidates for MAGISTER. The Gender Officer will assure equal chances and opportunities for all interested participants and that the EU gender issue policy is rigorously followed. The best candidates will be selected by unanimous decision of the Recruitment Committee and the recruiting beneficiary.

Application

Please send your application before **1st of December 2017**, provided with a CV, list of three persons for reference, a list of publications (if applicable), and a summary of the M.Sc thesis either to

Prof. N. Zarzalis (nikolaos.zarzalis@kit.edu)

or

Dr. B. Stelzner (bjoern.stelzner@kit.edu)

or

Dr. S. Harth (stefan.harth@kit.edu)

who will also provide additional information upon request