

Post-Doc Young Researcher Position: experimental study of prechamber igniter for NH₃ engine

Since several years, PRISME Laboratory (<https://www.univ-orleans.fr/fr/prisme>) has developed an expertise in ammonia combustion especially for internal combustion engines. Funded by Region Centre Val de Loire, the NOVAMAC project aims at studying active prechamber igniters for ammonia combustion in Spark-Ignition. Recent studies performed in current SI combustion chambers confirmed that a compression ratio around 10:1 could be sufficient to burn ammonia but can require small quantities of H₂ (around 5–10 %vol.) especially to operate on a wide range of load. The purpose of using active prechamber is to push back the limit of using ammonia in engines especially at low load where ignition and combustion stability are difficult to achieve in engines and therefore get rid of H₂ as much as possible. The candidate will have to carry out experiments in various configurations: on academical experimental setup such as combustion vessel and on engine test bench either optical or not and investigate a wide range of parameters either in terms of design or settings (e.g. prechamber design, fuel quantity, injection and ignition timings, etc.)

Profile

The candidate must have a Ph.D. in mechanical engineering with the required following skills:

- Experience of designing and implementing experimental methods, with fundamental knowledge in fluid mechanics, premixed combustion in engine, turbulence.
- Experience with optical diagnostics, especially Schlieren and Chemiluminescence. Knowledge about spectroscopy would be beneficial.
- Hands on experience with engine test bench.
- Experience with CONVERGE CFD would be a plus but not mandatory
- Oral and Written communication to report and for congress and scientific journal.

Conditions

Start January 2024

Duration: 18 months

Location: Orléans France, Laboratoire PRISME (<https://www.univ-orleans.fr/fr/prisme>)

Gross salary ~ 2700 € / month.

Contact

Send your full application package with CV (including the references to your 5 most important and relevant publications), reference letters, PhD evaluation, copy of passport (part of the hiring process).

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