

### **Research Scientist III**

#### **Development of CFD models for in-cylinder combustion and fuel sprays for Duel Fuel Premixed Compression Ignition Engines**

The Bio-fuels and Engine Research Center in the Department of Mechanical Engineering at Kandula Srinivas Reddy Memorial College of Engineering (KSRMCE) invite applications for the appointment of a Research Scientist position to lead our efforts in the development of Computational Fluid Dynamics models for a Duel Fuel Compression Ignition Engine.

This position is made possible by the grants from the Government of India, MAN S.E. (Germany) and DNV (Norway). The project also includes active experimental and modeling collaborations with the Automotive Research Center at the University of Michigan (Ann Arbor, US).

This research focuses on the development of various CFD models for understanding and predicting fuel spray breakup, engine combustion and emissions formation in the cylinder for various fuel combinations in a duel engine using commercial software. The initial part (6 months) of the work will include the development of models using StarCD (CFD software) and GT power (1D engine model) to predict engine behavior under various fuel conditions. Some analytical models will also be studied based on the simplicity of the problem. The candidate will work closely with Dr. Christos Chryssakis (DNV – Norway) and Dr. Aristotelis Babajimopolous (Automotive Research Center - University of Michigan) to develop these models.

The second phase of the work (8 months) would be to optimize cylinder, piston, fuel injection, intake and exhaust port design parameters to prescribe the optimal performance and emissions strategies for the duel fuel engine. The focus will primarily be on the prediction and optimization of engine parameters when using the bio-fuels generated by our process laboratory.

We seek a motivated researcher with excellent communication skills to co-ordinate with the multi-national research groups involved in this project. Successful candidate will lead a research team consisting of graduate students and staff to achieve the research goals. He/She will have prior experience in the fields of computation fluid dynamics modeling with commercial software (open source of GUI based). A Ph.D. in Mechanical Engineering is a prerequisite.

Demonstrated experience in the following areas is desired: (1) computation fluid dynamics (2) fluid mechanics and heat transfer (3) internal combustion engines (4) presentation skills to international audience.

The position will give the candidate an exposure to research groups around the world. The remuneration is extremely competitive given the global research perspective.

KSRMCE is a 200 acre campus and is situated in a serene and congenial atmosphere 7 KM's away from Kadapa town, Andhra Pradesh on Kadapa-Pulivendula state highway. It is ideally located within 3-4 hours of commute to both Chennai and Bangalore by road or 1.5 hours from the Tirupati airport. KSRM has three different campuses with excellent research and living facilities. To apply please send a cover letter and resume with references to Dr. Chaitanya Sampara at [csampara@ksrmce.ac.in](mailto:csampara@ksrmce.ac.in)

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