Theoretical Gas Phase Chemistry
KAUST

Job Title	Theoretical Gas Phase Chemistry
Department	Clean Combustion Research Center http://ccrc.kaust.edu.sa
Institution	KAUST Thuwal, Makkah, Saudi Arabia
Date Posted	Sep. 24, 2019
Application Deadline	Open until filled
Position Start Date	Available Immediately
Job Categories	Post-Doc
Academic Field(s)	Chemical/Petroleum Engineering - Other
Apply By Email	mani.sarathy@kaust.edu.sa

Job Description

The KAUST Clean Combustion Research Center (CCRC) is seeking a candidate for a postdoctoral research position to work with leading scientists in the development of detailed chemical kinetic models for transportation fuels. The candidate will use software tools to estimate thermodynamic and transport properties, develop reaction paths for new fuels, estimate rate constants using quantum chemistry tools, and validate chemical kinetic mechanisms by comparison to experimental data. The candidate will write technical papers and present his/her work at program reviews and technical conferences. The candidate must be able to work independently as well as in a research team. Depending on the candidate's expertise, he/she may be expected to travel for technical conferences and visit collaborators in North America, Europe, and Asia.

ESSENTIAL DUTIES
• Develop new reaction chemical kinetic mechanisms for hydrocarbon and alternative fuels.
• Use theoretical methods to explore low temperature oxidation pathways.
• Calculate thermochemical properties and reaction rate constants, both temperature- and pressure-

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dependent, using computational chemistry tools.
• Present work at working group meetings and conferences.
• Run combustion codes on Linux and PC platforms.

ESSENTIAL SKILLS, KNOWLEDGE, AND ABILITIES
• Recent PhD in Chemistry, Physical Chemistry, Chemical Engineering, or related field.
• Demonstrated knowledge of thermochemistry and chemical kinetics.
• Experience with running computer codes on Linux and PC platforms.
• Research experience in the area of combustion or atmospheric chemistry.
• An understanding of thermodynamics and chemical kinetics of hydrocarbons and oxygenated fuels.
• Knowledge of conventional and variational transition state theories.
• Demonstrated interpersonal skills necessary to interact with a diverse set of scientists, engineers, and other technical and administrative staff.
• Demonstrated written and verbal communication skills, as evidenced by publication and presentation record.

DESIRED SKILLS, KNOWLEDGE, AND ABILITIES
• Experience with developing chemical kinetic reaction mechanisms.
• Knowledge of the literature with respect to thermodynamic properties and rate constants.
• Experience in running Master Equation codes (PAPER, MESMER, etc.).
• Experience in running the CHEMKIN code is an asset.
• Experience in running ChemRate, PolyRate or similar codes calculate and fit rate constants.
• Experience with running the GAUSSIAN or other similar codes to compute thermodynamic parameters of species and reaction rate constants.

APPOINTMENT, SALARY AND BENEFITS
Salary: Highly competitive salary depending on qualification and seniority. No income tax is paid in Saudi Arabia.
Other benefits: Free furnished housing, free health care (medical and dental), 20 days annual vacation, air transportation to KAUST and return after the end of contract.

CONTACTS, APPLICATION MATERIAL AND DEADLINE
Interested applicants should send (i) a detailed CV, (ii) contacts of three references, and (iii) authored research articles.

NOTE: This is a guaranteed one-year term appointment with the possibility of extension to a maximum of three years. The position will remain open until filled, but the candidate is expected to join the team as soon as possible.

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ABOUT THE CLEAN COMBUSTION RESEARCH CENTER
The Clean Combustion Research Center conducts basic and applied research in the field of combustion. Topics of interest include: fuel formulation, oxy-fuel combustion, chemical kinetics, carbon capture, turbulent combustion, laser diagnostics, soot formation, sprays, flame-based nanoparticle synthesis, turbulent aerosols, and novel combustion concepts. The CCRC research program synergistically combines experimental and computational approaches.

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Mani Sarathy
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