Keerthana Gudemaranahalli Subramanya

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Skills

MATLAB Python oD/1D Simulations Ansys AutoCAD SolidWorks MS Office Project Management

Employment History

Sep 2020 - May 2022 **R&D Combustion Engineer** Fives European Combustion Centre, Italy.

- Research and development of low NOx and ultra low NOx burners.
- Planning of the testing activities, carrying out specific risk analysis and HAZOP studies. Perform combustion tests according to safety procedures and functional specification documents and ensure the reliability of the tests.
- Managed burners and furnaces, conducted combustion tests with various fuels, including steam dilution and CO_2 injection and proposed burner optimisations.
- Calibrated gas analysers and performed exhaust gas analysis to evaluate emissions and combustion efficiency.
- Preparation of combustion sheets, operation procedures, validation sheets, process calculations, test reports and concept note.
- Supervise and coordinate with suppliers. Conducted basic safety induction and combustion training.

Feb 2015 – Jan 2017 **Assistant Manager (Technical Services)**, Zuari Agro Chemical Limited, India

- Provided technical services to ammonia, urea, power plant, and water treatment units, supporting operational efficiency and product quality.
- Performed comprehensive material and energy balances, process calculations, and equipment sizing. Review of P&ID and PFD to support process optimisation.
- Identified bottlenecks and developed modification plans. Actively contributed to HAZOP studies.
- Assisted in energy audits and plant enhancement studies.
- Provided technical and operational support during plant startups, shutdowns, and emergencies.
- Participated in annual maintenance, and carried out vessel inspections, line thickness measurements, and hydrotesting.

Education

Dec 2022 – Mar 2026 **Ph.D. research in Energy engineering**, ICARE (CNRS), France.
Thesis title: *Assessment of OH* as a flame marker in premixed H_2 – air flames.*

- This research focuses on the experimental and numerical investigation of the relationship between OH* radical chemiluminescence and heat release rates in premixed H_2- air flames to validate OH* as a reliable flamefront marker. By correlating experimental diagnostic data with high-fidelity modelling, the study identifies chemical pathways of OH* formation under varying conditions, contributing to the development of advanced non-intrusive sensing techniques for hydrogen combustion.

Mar 2017 – Oct 2019 **M.Sc. Energy Engineering** , Politecnico di Milano, Italy.
Thesis title: *Repeatability of viscous oil-water-air flows in large horizontal pipes*.

- The experimental research primarily focused on the effective transport of heavy, viscous oil through pipelines using a core-annular flow (CAF) pattern to predict the pressure drop (P). Investigated flow regimes and characterised the effective gas-phase superficial velocity in the pipeline by performing particle image velocimetry using high-speed video recording.

Jun 2010 – Jun 2014 **B.E. in Chemical Engineering**, Dayananda Sagar College of Engineering, India.
Thesis title: *Biomethanation of municipal solid waste via anaerobic digestion using fungi*.

- The objective was to evaluate the feasibility of converting selected components of USW into biogas via anaerobic fermentation and to understand their decomposition, fermentation behaviour, and biogas production kinetics using a laboratory-scale experimental setup.

Research Publications

Journal Articles

1. K. G. Subramanya, G. Dayma, C. Chauveau, and F. Halter, "Detailed characterization of OH* chemiluminescence in a spherically expanding premixed H_2- air flames (under progress)," *Combustion and Flame*, 2026.
2. K. G. Subramanya, S.-Y. Lee, V. Lago, C. Chauveau, and F. Halter, "Detailed characterization of spatial and spectral signatures in premixed H_2 - air flames (under progress)," *International Journal of Hydrogen Energy*, 2026.

Personal information

Citizenship : Indian
DOB : 29/09/1992
Residence : Orleans, France
Languages : **English** (Fluent), **French** (A1), **Italian** (B1), **Hindi** (native)
Visa : French Talent passport since 2022