

HAMIDREZA FAJRI



Nationality: Iranian
Civil Status: Married

Contacts:

Email: Hamidreza.fajri@fau.de

Google scholar:

<https://scholar.google.com/citations?user=cYlaVuEAAAAJ&hl=en>

Linkedin:

<https://www.linkedin.com/in/hamid-reza-fajri-75252497/>

Computer Skills:

- Converge CFD
- GT-Power
- MATLAB
- Tecplot
- Catia
- Uniplot
- MS Office

Language:

IELTS Test Score:

- Overall: 6.5

GRE:

- Quantitative Reasoning: 164

ACADEMIC BACKGROUNDS

- Bachelor of Science (09/2006 to 07/2011)

- Mechanical Engineering, Islamic Azad University, Damavand Branch - Tehran – Iran
- Bachelor Thesis: Research about Using Piezoelectric Materials to Control of FGM Surface.

- Master of Science (09/2013 to 02/2016)

- Mechanical Engineering, K.N. Toosi University of Technology - Tehran – Iran
- Master Thesis: Simulation of Reactivity Controlled Compression Ignition (RCCI) Engine.

- Teaching Assistant

- Teacher assistant in advanced fluid mechanics.
- Teacher assistant in GT-power instruction.

- Awards

- 2 awards from the faculty of mechanical engineering for publications (~850 USD). K.N. Toosi University of Technology.
- Iran's National Elites Foundation award.

- Other Academic Project

- **Project:** Investigation of Spray Sub-models and Simulation of Compression Ignition Engine Fuelled with Ethanol, Iso-octane and N-heptane Fuels. A collaboration between Iran's National Elites Foundation and engine research institute.

- Code, Software and Model Developments

- Software development for engine friction calculation (MATLAB).
- Code development for adaptive cruise control prediction (MATLAB).
- Simulation of RCCI engine (Converge CFD).
- Code development for vehicle leaf spring design (MATLAB).

- Academic Research:

- Engine friction.
- Modern systems in hybrid vehicles.
- Modern systems in high technological vehicle.
- Vehicle can protocol.
- Ideal models of engine cycles.
- Adaptive cruise control.
- Introduction of RCCI engine.
- Performance and emission production of RCCI engines.

INDUSTRIAL EXPERIENCES

- Irankhodro Powertrain Company (2015 – Feb 2021)

- **Flow-bench Laboratory Expert:** Measurement of tumble, swirl and flow coefficient of diesel and gasoline engines.
- **Port Development Engineer:** Intake port optimization of gasoline and diesel engines.
- **Optic Laboratory Expert:** Measurement of laminar flame propagation, spray penetration and cone angle. Quality evaluation of different types of injectors, spark plugs and coils.
- **Engine Test Engineer:** Implementation and analysis of engine mapping, full load, knock and misfire cycles, pre-ignition, motoring and turbo-lag.
- **Engine Calibration Analysis Expert:** Analysis of gasoline and diesel engine calibrations in terms of emission, fuel consumption and performance.
- **CFD Simulation Engineer:** Simulation of diesel and gasoline fuels spray, engine gas exchange, tumble and swirl motion and combustion.

- Technical Advisor and Thesis Supervisor (Master and Ph.D.) (2015 – Feb 2021)

- Engine Knock Simulation in a Spark Ignition Engine (Master).
- Using Alternative Fuels in a Reactivity Controlled Combustion Ignition Engine (Master).
- Numerical Evaluation of Engine Performance and Emission Characteristics of Rapeseed Oil and Its Blends in Diesel Engines (Master).
- Using Natural Gas Fuel in a Reactivity Controlled Combustion Ignition Engine (Ph.D.).
- Dynamic Evaluation of Transient Response in Spark Ignition Engine with Waste Gate and Valve Timing Performance (Ph.D.).

- The Journal of Engine Research Reviewer (2017 – Feb 2021)

- Development of NO formation sub model for Scania DC-9 diesel engine in steady state condition. 2019/02/11
- Numerical and experimental investigation of diesel engine's port and cylinder to increasing of swirl. 2019/01/06
- Investigation of the effect of piston geometrical parameters on RCCI engine performance based on second law of thermodynamic. 2018/10/11
- Numerical investigation of the effect of a turbocharger compressor blades angle on its performance. 2017/07/06

PUBLICATIONS

ISI Journals:

- 2019 **Fajri, H. R.***, Shamekhi, A. H., Rezaie, S., Jafari, M. J. and Jazayeri, S. A. "A Detailed Study of Boost Pressure and Injection Timing on an RCCI Engine Map Fueled with Iso-octane and N-heptane Fuels." **Journal of Applied Fluid Mechanics**. Vol. 12, No. 4, pp. 1161-1175. (DOI: 10.29252/jafm.12.04.29492)
- 2019 **Fajri, H. R.***, Mohebi, M., Abdul Aziz, A. and Jazayeri, S. A. "Improving Incomplete Combustion and Reducing Engine-Out Emissions in Reactivity Controlled Compression Ignition Engine Fueled by Ethanol." **International Journal of Environmental Science and Technology**. p1-20. (DOI: 10.1007/s13762-019-02328-0)
- 2019 Sarmast, S., Ziabasharhagh, M., Salavati-zadeh, A. and **Fajri, H. R.** "Numerical Study on the Effects of Fuel Injection Characteristics on the Performance of a Lean burn SG-GDI Engine towards High Efficiency and Emissions Reduction." **Journal of Applied Fluid Mechanics**. Vol.12, No.3, pp 763-776. (DOI: 110.29252/jafm.12.03.29231)
- 2018 Keshavarz, M., Kakaee, A. H. and **Fajri, H. R.** "Analysis and dynamic calibration of the transient of an SI-engine equipped with turbocharger." **Journal of the Brazilian Society of Mechanical Sciences and Engineering**. Vol.40: p358. (DOI: 10.1007/s40430-018-1278-2)
- 2017 **Fajri, H. R.***, Jafari, M. J., Shamekhi, A. H. and Jazayeri, S. A. "A numerical investigation of the effects of combustion parameters on the performance of a compression ignition engine toward NOx emission reduction." **Journal of Cleaner Production**. Vol. 167: p140-153. (DOI: 10.1016/j.jclepro.2017.08.146)