Contact information

First name: Sayyed Aboozar
Last name: Fanaee
Address: Iran, Birjand, University of Birjand, Department of Engineering (Associate Professor)
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Education

Doctor of Philosophy, Fluid Mechanics- Energy Conversion, Iran, Mashhad, Ferdowsi University of Mashhad, Department of Engineering, 2009-2014.
Thesis title: Analytical modeling of hybrid catalytic micro-combustor.
Comprehensive exam fields: (First Score) Convection Heat transfer, fluid mechanics, Mathematics of Engineering.
Academic honors or distinctions: First Score among student at branch.

Master of Engineering, Aerospace-Propulsion, Iran, Tehran, University of Science and Technology, Department of Mechanical Engineering, 2007-2009.
Thesis title: the parametric modeling of combustion of organic dust particles.
Academic honors or distinctions: First Score Student at branch.

Bachelor of Engineering, Fluid Mechanics, Iran, Birjand, University of Birjand, Department of Engineering, 2002-2007.
Thesis title: The investigation of optimum condition of gas turbines considering financial parameters.
Academic honors or distinctions: Higher than GPA of Students.

Research Interests and Experience

energy conversion
Desalination
Solar energy
Combustion, Hydrogen fuel and Fire modeling
Air pollutants
Porous media

Capabilities

Programming
Fortran, Matlab Programming

Numerical modeling
The financial Analysis (TTR)
The genetic algorithm
Lattice Boltzmann Method

Analytical modeling
Perturbation Method
Non-Asymptotic Analysis
Homotopy Perturbation Method

Software
Comsole Multipysics
Open Foam
Fluent, Matlab and Carrier (with International degrees)
Rosa
Microsoft Collections

Publications

Journals

1. Fanaee, S. A., Kheiri, R., Edalati-nejad, A., & Ghodrat, M. (2021). Novel design for tri-generation cycle with Parabolic Trough Collector: An exergy-economic analysis. ***Thermal Science and Engineering Progress***, *24*, 100871.
Link: https://www.sciencedirect.com/science/article/abs/pii/S2451904921000330

2. Edalati-nejad, A., Fanaee, S. A., Ghodrat, M., & Khadem, J. (2021). Investigation of unsteady premixed micro/macro counterflow flames for lean to rich methane/air mixture. ***Journal of Energy Resources Technology***, *143*(5), 052302.
Link: https://asmedigitalcollection.asme.org/energyresources/article- abstract/143/5/ 052302 / 1093944 /Investigation-of-Unsteady-Premixed-Micro-Macro

3. Pourali, M., Esfahani, J. A., Fanaee, S. A., & Kim, K. C. (2021). Developing mathematical modeling of the heat and mass transfer in a planar micro-combustor with detailed reaction mechanisms. ***Journal of Thermal Analysis and Calorimetry***, 143(3), 2679-2694.
Link: https://link.springer.com/article/10.1007/s10973-020-09623-w

4. Kazemian, Y., Esfahani, J. A., & Fanaee, S. A. (2020). Simulation of combustion flowfield in porous media with lattice Boltzmann method. ***Journal of Thermophysics and Heat Transfer,*** *34*(3), 591-600.
Link: https://arc.aiaa.org/doi/abs/10.2514/1.T5926

5. Pourali, M., Esfahani, J. A., Fanaee, S. A., Bastiaans, R. J., & Kim, K. C. (2020). Effect of hydrogen addition on conjugate heat transfer in a planar micro-combustor with the detailed reaction mechanism: An analytical approach. ***International Journal of Hydrogen Energy,*** *45*(30), 15425-15440.
Link: https://www.sciencedirect.com/science/article/abs/pii/S0360319920312751

6. Edalati-nejad, A., Fanaee, S. A., Ghodrat, M., Salehi, F., & Khadem, J. (2020). The time dependent investigation of methane-air counterflow diffusion flames with detailed kinetic and pollutant effects into a micro/macro open channel. ***Case Studies in Thermal Engineering***, *18*, 100603.

Link: https://www.sciencedirect.com/science/article/pii/S2214157X20300381

7. Fanaee, S. A., & Rezapour, M. (2020). The modeling of constant/variable solar heat flux into a porous coil with concentrator. ***Journal of Solar Energy Engineering,*** *142*(1), 1-9.

Link: https://asmedigitalcollection.asme.org/solarenergyengineering/article-abstract/142/1/011004/956153/The-Modeling-of-Constant-Variable-Solar-Heat-Flux? RedirectedFrom=fulltext

8. Fanaee, S. A., & Kheiri, R. (2020). Modeling and evaluation of the flow regime effects on fluid movement into three-dimensional channel with porous wall. ***Journal of Solid and Fluid Mechanics***, *10*(3), 265-280.

Link: http://jsfm.shahroodut.ac.ir/mobile/article_1939.html?lang=en

9. Rezapour, M., & Fanaee, S. A. (2020). Modeling the effect of porosity on a solar water-cooled coil filled with water and Al2O3 nanofluid. ***Energy Engineering & Management,*** *10*(1), 100-111.

Link: http://energy.kashanu.ac.ir/article-1-1114-en.html

10. Pourali, M., Esfahani, J. A., & Fanaee, S. A. (2019). Two-dimensional analytical investigation of conjugate heat transfer in a finite-length planar micro-combustor for a hydrogen-air mixture. ***International Journal of Hydrogen Energy***, *44*(23), 12176-12187.

Link: https://www.sciencedirect.com/science/article/abs/pii/S0360319919311589

11. Edalati-nejad, A., Fanaee, S. A., & Khadem, J. (2019). The unsteady investigation of methane-air premixed counterflow flame into newly proposed plus-shaped channel over palladium catalyst. ***Energy***, *186*, 115833.

Link: https://www.sciencedirect.com/science/article/abs/pii/S0360544219315051

12. Fanaee, S. A., & Rezapour, M. (2019). Analysis of the Fluid-Thermal Regime with the Developed Brinkman Model in a Porous Coil for Solar Energy Application. ***Modares Mechanical Engineering***, *19*(4), 855-863.

Link: https://mme.modares.ac.ir/files/mme/user_files_749497/sabfamech-A-10-18640-2-4ad5c11 .pdf

13. Fanaee, S. A., & Rajaee, M. (2019). Analytical study of the continuous regime effects of hydrogen-air mixture put into a micro-channel with platinum catalytic surface, ***Iranian Journal of Mechanical Engineering***, *20*(4), 6-25.

Link: http://jmep.isme.ir/article_34806_en.html

14. Fanaee, S. A. (2018). Self-similar nonasymptotic solution of multireaction stationary flow in catalytic microcombustor. ***Journal of Thermophysics and Heat Transfer***, *32*(3), 560-569.

Link: https://arc.aiaa.org/doi/abs/10.2514/1.T5247

15. Edalatinejad, A., Fanaee, S. A., & Khadem, J. (2017). The investigation of pollutants emission on counterflow diffusion heating system with multi-step reactions modeling using OpenFoam software. ***Modares Mechanical Engineering***, *16*(13), 226-229.

Link: https://mme.modares.ac.ir/article-15-5760-en.html

16. Fanaee, S. A. (2016). The analytical modeling of finite-length homogonous micro-combustor for a hydrogen-oxygen mixture with wall temperature effects. ***Journal of Mechanics***, *32*(5), 631-642.

Link: http://journals.cambridge.org/abstract_S1727719116000113

17. Fanaee, S. A., & Esfahani, J. A. (2015). Analytical two-dimensional modeling of hydrogen–air mixture in catalytic micro-combustor. ***Meccanica,*** *50*(7), 1717-1732.

Link: http://link.springer.com/article/10.1007%2Fs11012-015-0118-z

18. Esfahani, J. A., & Fanaee, S. A. (2015). Analytical modeling of hydrogen–air mixture in a catalytic microchannel. ***Journal of Thermophysics and Heat Transfer***, *29*(2), 274-280.

Link: http://arc.aiaa.org/doi/abs/10.2514/1.T4234

19. Fanaee, S. A., & Esfahani, J. A. (2014). Two-dimensional analytical model of flame characteristic in catalytic micro-combustors for a hydrogen–air mixture. ***International Journal of Hydrogen Energy***, *39*(9), 4600-4610.

Link: http://www.sciencedirect.com/science/article/pii/S0360319913031832

20. Fanaee, S. A., & Esfahani, J. A. (2014). The analytical modeling of propane-oxygen mixture at catalytic micro-channel. ***Heat and Mass Transfer***, *50*(10), 1365-1373.

Link: http://link.springer.com/article/10.1007%2Fs00231-014-1344-y

21. Bidabadi, M., Montazerinejad, S., & Fanaee, S. A. (2014). The influence of radiation on the flame propagation through micro organic dust particles with non-unity Lewis number. ***Journal of the Energy Institute***, *87*(4), 354-366.

Link: http://www.sciencedirect.com/science/article/pii/S1743967114000373

22. Zafariyan, S., Fanaee, A., & Mohammadzadeh, A. (2013). The investigation of thermal and solutal secondary effects on MHD convective transfer past a vertical surface in a porous medium. ***Arabian Journal for Science and Engineering***, *38*(11), 3211-3220.

Link: https://link.springer.com/article/10.1007/s13369-012-0453-5

23. Zafariyan, S., & Fanaee, A. (2013). MHD Mixed Convective Flow Past a Vertical Plate Embedded in a Porous Medium with Radiation Effects and Convective Boundary Condition Considering Chemical Reaction, ***Cankaya University Journal of Science and Engineering***, *10*(1), 21-27.

Link: http://cujse.cankaya.edu.tr/archive/10-1/cujse_10_1_10.pdf

24. Fanaee, A., & Esfahani, J. A. (2012). The normalized analysis of a surface heterogeneous reaction of a propane/air mixture into a micro-channel. ***Chinese Physics Letters***, *29*(12), 124702.

Link: http://iopscience.iop.org/0256-307X/29/12/124702

25. Fanaee, A., & Esfahani, J. A. (2011). The investigation of semi-three-dimensional heat transfer modeling in microcombustors. ***Journal of Thermal Science and Engineering Applications***, *3*(1), 1-7.

Link:http://thermalscienceapplication.asmedigitalcollection.asme.org/article.aspx?articleID=1469686

26. Bidabadi, M., Montazerinejad, S., & Fanaee, S. A. (2010). An analytical study of radiation effect on the ignition of magnesium particles using perturbation theory. ***Latin American applied research***, *40*(4), 351-357.

Link: http://www.laar.uns.edu.ar/indexes/artic_v4004/Vol40_4_351.pdf

27. Bidabadi, M., Fanaee, A., & Rahbari, A. (2010). Investigation over the recirculation influence on the combustion of micro organic dust particles. ***Applied Mathematics and Mechanics***, *31*(6), 685-696.

Link: http://link.springer.com/article/10.1007%2Fs10483-010-1303-7

Book (English)

1. A. Fanaee, Piezoelectric Materials and Devices - Practice and Applications, **contribution at one book chapter, InTech Publications, Serbia, published at 2013.**

Link:http://www.intechopen.com/books/piezoelectric-materials-and-devices-practice-and-

applications

International Conferences

1. Edalati-Nejad, A., Fanaee, S. A., Ghodrat, M. (2020). CFD modeling of unsteady Counterflow flame into Rhodium catalytic chamber. **The University of Queensland, Australia, 22nd Australasian Fluid Mechanics Conference (AFMC2020).**
Link: https://espace.library.uq.edu.au/view/UQ:f02452b

2. Kargar, A., & Fanaee, A. (2014). The Simulation and Optimization of Centrifugal Fan by Geometry-Numerical Method at Design and Off-Design Conditions**. Bali, Indonesia, 4th International Conference on Power and Energy Engineering (ICPEE 2014).**
Link:https://www.researchgate.net/publication/292836428_The_simulation_and_optimization_of_centrifugal_fan_by_geometry-numerical_method_at_design_and_off_design_conditions

Supervision Experience

1. Project: "The Analysis and Optimization of Organic Fuel Combustion by Dynamic Mesh Method" Funded by industrial research Organization, Iran, **Supervisor: Dr. Sayyed Aboozar Fanaee.**
2. Project: "The Energy Optimization in Combustion Systems with Thermoelectric Accessories" Funded by Gas Company of Khorasan Jonoobi Province, Iran, **Supervisor: Dr. Sayyed Aboozar Fanaee.**
3. Project: "The Energy Optimization and Analysis of Thermo-Photovoltaic Combustion System" Funded by National Gas Company of Iran, **Supervisor: Dr. Sayyed Aboozar Fanaee.**

Co-operations

1. Project: "The investigation of resident and moving pollutants in Kermanshah city, Iran" Funded by Iran's Environmental Organization**, Supervisor: Dr. Navid ramezanian (only the flow).**
2. Project: "The investigation of Leakage in the Gas pipelines" Funded by Gas Company of Khorasan Razavi Province, Iran, **Supervisor: Dr. Javad Abolfazli Esfahani (only the flow).**
3. **Project:** "The Energy Optimization in Combustion Systems of Refinery" Funded by Khangiran Refinery, **Supervisor: Dr. Sayyed Hossein Hosseini (only the flow).**