

CV Dr. Abdelkader FILALI

Name: Abdelkader FILALI

Rank: Associate Professor

Department: Mechanical Engineering

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Educational Profile:

- Doctorate Science/PhD in Mechanical Engineering, Université Constantine 1, Algeria
- Master's in mechanical engineering, Université Constantine 1, Algeria
- Bachelor's in Mechanical Engineering, Université Constantine 1, Algeria

Scientific Activities & Membership of Scientific Societies

- Member of the UNESCO IGCP Project - The International Geoscience Programme – Mars 2020 – Present
- Member of the American Physical Society APS : September 01, 2019 – September 01, 2021
- Member of the scientific committee at the National School of Polytechnic Constantine, ENPC, Constantine, Algeria, September 2019 – Present
- Member of the organization committee for the conference Journée Scientifiques sur les Sciences et l' Engineering JSSE'18, Constantine, Algeria, 09-10 December 2018
- Member of the consumer protection organization since November 20, 2020

List of Current Research Projects

- PNR Project (2022-2025): Valorisation des gaz torchés pour la production d'électricité par les systèmes ORC
- SONATRACH Company Project (2020-2023): Valorisation of flared gases for electricity production through ORC systems
- PRFU Project (2020-2023): Generation of atmospheric vortex by solar energy for electricity production
- IGCP UNESCO project 636 (2020-2025): Geothermal resources for energy transition: direct uses and renewable base-load power around the globe

List of Journal Publications

1. Boulechfar, H., Berrahil, F., Boulmerka, A., **Filali, A.**, Djezzar, M., 2023, Double diffusive Buoyancy-driven flow in fluid-saturated elliptical annulus with neural network-based prediction of heat and mass transfer. Heat transfer. Page: 1-28, ISSN: 2688-4542.
2. Aberkane, S., Semmari, H., **Filali, A.**, Rebai, N. and Belkadi, M. 2023, Thermo-economic assessment of upgrading a basic gas turbine power plant into CHP plant, Int. J. Exergy, Vol: 40, No. 4, Page:429–450, ISSN: 1742-8297.
3. Sadjji, A., Boudchicha, MR., Ziouche, A., **Filali, A.**, Achour, S., 2023, Glass–ceramic foams from waste glass and natural red soil. Journal of the Australian Ceramic Society Vol: 59, No. 2, Page: 425-436, ISSN: 1388-6150.
4. Korei, Z., Berrahil, F., **Filali, A.**, Benissaad, S., Boulmerka, A., 2023, Thermo-magnetic convection analysis of magnetite ferrofluid in an arc-shaped lid-driven electronic chamber with partial heating. Journal of Thermal Analysis and Calorimetry, ISSN: 1388-6150.

5. Korei, Z., Benissaad, S., **Filali, A.**, Berrahil, F., 2023, An Investigation of Entropy and Exergy of Nanofluid Flow in Microchannel Heat Sinks. *Journal of Nanofluids*. J. Nanofluids Vol: 12, Pages: 1160–1172, ISSN: 2169-432X.
6. Aberkane, S., Semmari, H., **Filali, A.**, Rebai, N., Belkadi, 2022, Thermo-economic assessment of upgrading a basic gas turbine power plant into CHP plant. *International Journal of Exergy*. (In Press), ISSN: 1742-8297.
7. Korei, Z., Benissaad, S., Chamkha, A. J., Berrahil, F., **Filali, A.**, 2022, Thermohydraulic and second law analyses during the cooling of an electronic device mounted in an open cavity equipped with magnetic nanofluid, magnetic field inducer, and porous media: A two-phase numerical investigation. *International Communications in Heat and Mass Transfer*. Vol: 139, 106497, ISSN: 0735-1933.
8. Belaid, A., **Filali, A.**, Hassani, S., Arrif, T., Guermoui, M., Gama, A., Bouakba, M., 2022, Heliostat field optimization and comparisons between a biomimetic spiral and a radial-staggered layouts for different heliostat shapes. *Solar energy*, Vol: 238, Pages: 162-177, ISSN: 0038-092X.
9. Korei, Z., Benissaad, S., Berrahil, F., **Filali, A.**, 2022, MHD mixed convection and irreversibility analysis of hybrid nanofluids in a partially heated lid-driven cavity chamfered from the bottom side. *International Communications in Heat and Mass Transfer*, Vol: 132, 105895, ISSN: 0735-1933
10. Salhi, J. E., Amghar, K., **Filali, A.**, Salhi N., 2022, Effect of the spacing design of two alternated baffles on the performance of heat exchangers. *Defect and Diffusion Forum*. 1662-9507, Vol: 415, Pages: 53-72, ISSN: 1662-9507.
11. **Filali, A.**, Khezzar, L., Semmari, H., Matar k O., 2021, Application of Artificial Neural Network for mixed convection in square lid-driven cavity with double vertical or horizontal oriented rectangular blocks. *International Communications in Heat and Mass Transfer* Vol: 129, 105644, ISSN: 0735-1933
12. Bouzennada, T., Mechighel, F., **Filali, A.**, Kolsi, L., 2021, Numerical investigation of heat transfer and melting process in a PCM capsule: effects of inner tube position and Stephan number. *Case Studies in Thermal Engineering*, Vol: 27, 101306, ISSN: 2214-157X.
13. Berrahil, F., **Filali, A.**, Abid, C., Benissaad, S., and Bessaih R., Matar,O., 2021, Magnetic field effects on natural convection of Al₂O₃/Water nanofluid with variable properties in annular enclosure. *International Communications in Heat and Mass Transfer* Vol:, 126, 105408, ISSN: 0735-1933
14. Amghar, K., **Filali, A.**, Louhibi, M. A., Bouali, H., Salhi, N., Salhi, M., 2021, Numerical study of turbulent heat transfer in a horizontal channel provided with square blocks: Effect of the blocks spacing. *Journal of Thermal Engineering*, Vol: 7, Pages: 650-665, E-ISSN: 2148-7847.
15. Zina, B. **Filali, A.**, Benamara, N., Laouedj, S., Hamdi E., Ahmed. 2020, Numerical simulation of heat transfer improvement of new designed artificially roughened solar air heater using triangular ribs with semi-circular nooks. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*. Pages: 1556-7036, ISSN: 1556-7230.
16. Chaour, M. Boudebous, S., **Filali, A.**, 2020, Optimum cooling based on the exit openings position for turbulent mixed convection in ventilated cavities. *Periodica Polytechnica Mechanical Engineering*, Vol. 64 No. 4, Page: 307-316, ISSN: 0324-6051.
17. Arabi, A., Ragui, K., Salhi, Y., **Filali, A.**, 2020, Slug Frequency for a Gas-Liquid Plug Flow: Review, and Development of New Correlations. *International Communications in Heat and Mass Transfer*, 118, 104841, ISSN: 0735-1933
18. Belaid, A., **Filali, A.**, Gama, A., Arrif, T., Bezza, B. Bouakba, M., 2020, Design optimization of a solar tower power plant heliostat field by considering different heliostat shapes. *International Journal of Research Energy*, Vol. 44, Issue 14, Pages: 1-18, ISSN: 0363-907X.
19. Semmari, H., **Filali, A.**, Aberkane, S., Feidt, R., Feidt, M., 2020, Flare gas waste heat recovery: assessment of Organic Rankine Cycle for electricity production and possible coupling with absorption chiller. *Energies*, 13, 2265, ISSN: 1996-1073.

20. Bouzennada, T., Mechighel, F., and **Filali, A.**, Kolsi, L., 2020, Study of the Usability of Sinusoidal Function Heat Flux based on Enthalpy-porosity technique for PCM Related Applications. *Journal of Thermal Analysis and Calorimetry*, Vol: 141, Pages: 1769–1784, ISSN:1388-6150
21. Benayad, Z., Laouedj, S., **Filali, A.**, 2020, Numerical Investigation on the Cooling of Electronics Components with Synthetic Multi-Jets and Non-Sinusoidal Bi-periodic Forcing Functions. *Energy Reports*, Vol: 6, Pages: 1-9, ISSN: 2352-4847.
22. Zina, B., **Filali, A.**, Laouedj S., Benamara N., 2019, Numerical Investigation of a Solar Air Heater (SAH) with Triangular Artificial Roughness Having a Curved Top Corner. *Journal of Applied Fluid Mechanics*. Vol: 12, ISSN: 1735-3572.
23. Eutamene S, Boudebous S, Berrahil F, Kholai O, Dahdi B, **Filali A.**, 2019, Unsteady Mixed Convection in a Cubic Lid-Driven Cavity Partially Heated from the Bottom. *Journal of Advanced Research in Fluid Mechanics and Thermal Sciences*. Vol: 57, Pages: 275-287, E-ISSN: 2289-7879.
24. Debbah, D., Kholai, O., **Filali, A.**, 2018, Determination of a Hopf bifurcation of natural convection in a symmetric heated square cavity. *International Journal of Heat and Technology*. Vol: 36, No. 4, Pages: 1268-1275, ISSN: 0392-8764.
25. **Filali, A.**, AlShehhi, M., Khezzar, L., Nemouchi, Z., 2018, Effect of Solvent Contribution on Thermally Developing Flow of FENE-P Fluids between Parallel Plates. *Journal of Applied Fluid Mechanics*. Vol: 11, Pages: 1-9, ISSN: 1735-3572.
26. **Filali, A.**, Khezzar, L., AlShehhi, M., 2017, Numerical simulation of FENE-P viscoelastic fluids flow and heat transfer in grooved channel with rectangular cavities. *Korea-Australia Rheology Journal*. Vol: 29, Pages: 195–205, ISSN: 1226-119X.
27. AlMelhi, S. **Filali, A.**, Khezzar, L., AlShehhi, M., 2017, Flow and Heat Transfer of a Giesekus Fluid in Plane and 3D Ducts. *Heat Transfer-Asian Res*. Vol: 46, Issue 8, Pages: 1380-1398, ISSN: 1523-1496.
28. Kharoua, N., AlShehhi, M., Khezzar, L., **Filali, A.**, 2017, CFD Prediction of Black Powder Particles' Deposition in Vertical and Horizontal Gas Pipelines. *Journal of Petroleum Science and Engineering*. Vol: 149, Pages: 822–833, ISSN: 2949-8910.
29. **Filali, A.**, Khezzar, L., AlShehhi, M.S., Kharoua. N., 2016, A One-D Approach for Modelling Transport and Deposition of Black Powder Particles in Gas Network. *Journal of Natural Gas Science & Engineering*. Vol. 28, Pages: 241–253, ISSN: 2949-9089.
30. Khezzar, L., **Filali, A.**, AlShehhi, M., 2014, Flow and Heat Transfer of FENE-P Fluids in Ducts of Various Shapes: Effect of Newtonian Solvent Contribution. *Journal of Non-Newtonian Fluid Mechanic*. Vol: 207, Pages: 7 – 20, ISSN: 0377-0257.
31. **Filali, A.**, and Khezzar, L., 2013, A Finite Element Investigation of Elastic Flow Asymmetries in Cross-Slot Geometries Using a Direct Steady Solver, *Fluid Dynamics & Materials Processing*, Vol: 9, Pages: 307-329, ISSN: 1556-256X.
32. **Filali, A.**, Khezzar, L., Mitsoulis, E., 2013, Some experiences with the numerical simulation of Newtonian and Bingham fluids in dip coating. *Computers & Fluids*, Vol: 82, Pages: 110-121, ISSN: 0045-7930.
33. **Filali, A.**, Khezzar, L., 2013, Numerical Simulation of the Graetz Problem in Ducts with Viscoelastic FENE-P Fluids. *Computers & Fluids*, Vol: 84, Pages: 1-15, ISSN: 0045-7930.
34. **Filali, A.**, Khezzar, L., Nemouchi, Z., Siginer, D.A., 2012, Graetz Problem with Non-linear Viscoelastic Fluids in Non-Circular Tubes. *International Journal of Thermal Sciences*. Vol: 61, Pages: 50-60, ISSN: 1290-0729.

List of Conference Papers

1. **Filali, A.**, Boudeffa, M., Dous, F., Nemouchi, Z., Matar, O., 2022, Numerical study on the intensified vortex cooling for gas turbine blade. 17th UK Heat Transfer Conference (UKHTC2021), 4-6 May 2022, Manchester, UK

2. Aberkane, S., Semmari, H., **Filali, A.**, Belkadi, M., Rebai, N., 2021, Assessment of waste heat potential of an Algerian gas turbine power plant for electricity production and district heating. Sixth International Conference on Polygeneration – ICP, online on 4-6 October 2021
3. Zina, B., **Filali, A.**, Zeroki, A., Mohammedi, A., Ahmed H, 2021, Turbulent and Heat Transfer Investigation of Artificially Roughened Solar Air Heater. Séminaire international sur les sciences de la matière (Physique et Chimie). Algerian Journal of Engineering, Architecture and Urbanism AJEAU, January 22, 2021 (Online webinar).
4. Zina, B., Belhamiani, M., Zeroki, A., **Filali, A.**, Laouedj, S., and Benamara, N., 2020, Parametric study of the thermal efficiency of a gas turbine MAN THM 1304-11. La 1er Conférence Nationale sur la Transition Énergétique en Algérie, CNTEA1-2020. Mars 08-09, 2020, M'sila, Algeia.
5. **Filali, A.**, Matar k O., Semmari, H., Khezzar, L. 2020, Artificial Neural Network for the prediction of heat transfer of mixed convection in lid-driven cavity with double vertical or horizontal blocks. 73st Annual Meeting of the APS Division of Fluid Dynamics. November 22 – 24, 2020, Chicago, US.
6. Bouzennada, T., Mechighel, F., **Filali, A.**, 2020, Numerical study of the natural convection impact into a PCM within tubular capsule. Conference and Forum on Engineering Science (JSI'2020), Sefax, Tunisia, September 25-27, 2020.
7. **Filali, A.**, Khezzar, L., Semmari, H., 2020, Improved power for wind farm Savonius rotors: Effect of the rotor's position. Proceedings of the ASME 2020 Fluids Engineering Division Summer Meeting FEDSM2020, July 12-16, 2020, Orlando, Florida, USA
8. Zina, B., **Filali, A.**, Benamara, N., and Laouedj, S., 2020, Heat transfer enhancement for a solar air heater using triangular artificial roughness. 1st International Symposium Environnement and Sustainable Energy. February 10-11, 2020, Relizane, Algeria.
9. **Filali, A.**, Matar k O., Semmari, H., Khezzar, L., Boumaaraf A., and Zitouni K., 2019, Enhanced power for new designed Savonius rotor. 71st Annual Meeting of the APS Division of Fluid Dynamics. November 23 - 26, 2019, Seattle, Washington.
10. **Filali, A.**, Khezzar, L., Matar k O., and Semmari, H., 2019, Laminar Mixed Convection in Square Cavity with Rotating Cylinder Mounted at Different Side Walls. Fifth International Conference on Energy, Materials, Applied Energetics and Pollution. ICEMAEP2019, October 22-24, 2019, Constantine, Algeria.
11. Amara, M., Semmari H., **Filali, A.**, 2019, Towards CHP system: Preliminary investigation and integration of an ORC cycle on a simple gas boiler. 1st International Conference On Engineering Solutions for Sustainable Development, University of Miskolc, 3-4 October, 2019, Miskolc, Hungary.
12. Semmari, H., **Filali, A.**, 2019, Valorisation des gaz torchés pour la production d'électricité. 6^{ème} Symposium de l'AIG , le gaz naturel au centre de la diversification énergétique, Hôtel Le Méridien d'Oran, 23 - 24 Juin 2019.
13. Zina, B., **Filali, A.**, Benamara N., Laouedj. S. 2018, Numerical study of a solar air heater with triangular artificial roughness having a curved top corner. ICAME, 4th International Conference on Advances in Mechanical Engineering, Istanbul 2018, 19-21 December 2018.
14. **Filali, A.**, 2018, Characterization of droplet sizes in cross-junction microfluidic device. Journée Scientifiques sur les Sciences et l'Engineering JSSE'18, Constantine, Algeria, 09-10 Decembre, 2018
15. Amghar, K., **Filali, A.**, Louhibi, M. A., Bouali, H., Salhi, N., Salhi, M., 2018, Turbulent flow and heat transfer in confined channel flow past four square bars arranged side by side. IMAT3E: International Meeting on Advanced Technologies in Energy and Electrical Engineering Fez, Morocco, November 22-23, 2018
16. Khezzar, L. **Filali, A.**, Omar, K. M, 2018, Flow instability in a plane sudden expansion followed by a curved duct." 71st Annual Meeting of the APS Division of Fluid Dynamics. KP1.00110, November 18–20, 2018; Atlanta, Georgia

17. Belaid, A., Gama, A., Bouakba, A, **Filali, A.**, Bezza. B., Arrif, T., 2018, The effect of rectangular heliostat shape ratio on the spiral layout performance of a solar tower thermal power plant. Conference: 18th International Multidisciplinary Scientific GeoConference SGEM 2018, 03 – 06, December, 2018, Hofburg, Vienna, Austria.
18. Bouzennada, T., Mechighel, F., **Filali, A.**, Ismail, T., 2018, Numerical study of influence of casting speed in solidification process for pure metal. International Seminar in Industrial Engineering and Applied Mathematics (SGIMA'2018) Skikda - Algeria, October 23 & 24, 2018
19. **Filali, A.**, Khezzar, L. AlShehhi, M., 2016, Flow behavior of FENE-P fluids in grooved parallel plates with transverse cavities. International Mechanical Engineering Congress & Exposition IMECE2016, November 11-17, 2016, Phoenix, Arizona, US.
20. Rodgers P., Eveloy V., **Filali A.**, Joshi N., 2016, CFD Modeling of Environmental Gas Dispersion over Hilly Terrain, in Proceedings of the 11th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES 2016), September 4 – 9, 2016, Lisbon, Portugal.
21. AlMelhi, S., **Filali, A.**, Khezzar, L., AlShehhi, M., 2015, Heat-Transfer Analysis of Visco-Elastic Giesekus Fluid in a Duct Between Parallel Plates and in a Straight Pipe of a Circular Cross-Section. International Mechanical Engineering Congress & Exposition IMECE 2015. November 13-19, 2015, Houston, TX, USA.
22. **Filali, A.**, Khezzar, L., AlShehhi, M.S., Kharoua. N., 2015, A one Dimensional Model to Track the Black Powder Dispersion and Deposition within Gas Transmission Network. The Abu Dhabi International Petroleum Exhibition and Conference ADIPEC 2015, November 9 – 12th, 2015 Abu Dhabi, United Arab Emirates.
23. **Filali, A.**, Nemouchi, Z., Khezzar, L., 2015, Écoulement tourbillon dans une chambre de combustion. In: 5th International Congress of Mechanical Engineering CAM 2015, El-Oued, Algeria. October 25-29, (2015).
24. **Filali, A.**, and Khezzar, L., 2015, Modeling of non-Newtonian fluid using ANSYS POLYFLOW code - Different applications. 3rd ANSYS User Meeting Conference 25th November 2015. Nassima Royal Hotel, Dubai, UAE.
25. **Filali, A.**, Khezzar, L., Nemouchi, Z., 2014, Entry flows for FENE-P fluids in a plan passage for constant heat flux & wall temperature boundary conditions. Proceedings of CONV-14: Int. Symp. on Convective Heat and Mass Transfer, June 8 – 13, 2014, Turkey.
26. **Filali, A.**, Khezzar, L., Nemouchi, Z., 2014, Finite element simulation of the Graetz problem in an elliptic duct for a viscoelastic fluid. Proceedings of CONV-14: Int. Symp. on Convective Heat and Mass Transfer, June 8 – 13, 2014, Turkey.
27. **Filali, A.**, Khan, T. S., Khezzar, L., AlShehhi, M., 2014, Approaches to Understanding of Black Powder Movement & Dispersion. ADRAC Abu Dhabi International Research & Development Academic Conference & Exhibition, 24-26 February 2014.
28. **Filali, A.**, and Khezzar, L., 2013, A Finite Element Investigation of Elastic Flow Asymmetries in Cross-Slot Geometries Using a Direct Steady Solver. 1st ANSYS User Meeting Conference 7th November 2013. Radisson Blue Hotel, Dubai, UAE.
29. **Filali A.**, Khezzar, L., Pinho F. T., Alves M. A., 2012, Purely Elastic Flow Asymmetries in Cross-slot Geometry- Are They Always Present?. Proceedings of CHT-12 ICHMT International Symposium on Advances in Computational Heat Transfer, England, Bath, July 1-6, (2012).
30. **Filali, A.**, Khezzar, L., Siginer, D.A., Nemouchi, Z., 2012 Graetz Problem using FENE-P Fluids without viscous dissipation. Proceedings of ASME 2012 International Mechanical Engineering Congress & Exposition IMECE2012, November 9-15, 2012, Houston, Texas, USA.
31. **Filali, A.**, Khezzar, L., Mitsoulis, E., 2012, Numerical Modeling of the Dip Coating Problem. Proceedings of ASME 2012 International Mechanical Engineering Congress & Exposition IMECE2012, November 11-17, 2012, Houston, Texas, USA.
32. **Filali, A.**, Khezzar, L., Siginer, D.A., Nemouchi. Z., 2011, Numerical simulations of the axisymmetric Graetz problem using the viscoelastic PTT model. In: 3rd International congress of mechanical engineering CAM 2011, Guelma, Algeria. November 14-17, (2011).

33. **Filali, A.**, Khezzar, L., Siginer, D.A., Nemouchi, Z., 2011, Graetz problem in ducts of circular and some non-circular cross-sections with viscoelastic fluids. In: Proceedings of ASME 2011 International Mechanical Engineering Congress & Exposition IMECE2011, November 11-17, 2011, Denver, Colorado, USA.

List of Seminar Presentations

1. Zina, B., Filali, A., Benamara, N., and Laouedj, S., 2020, Parametric study of the thermal efficiency of a gas turbine MAN THM 1304-11. La 1ère Conférence Nationale sur la Transition Energétique en Algérie CNTEA1-2020.
2. Filali, A., and Khezzar, L., AlShehhi, M., 2016, Flow behavior of FENE-P fluids in grooved parallel plates with transverse cavities. 4th ANSYS User Meeting Conference 24th November 2016. Sofitel Abu Dhabi Corniche, Abu Dhabi, UAE.
3. Filali, A., Khezzar, L., Nemouchi, Z., 2015, Swirling flow in Gas Turbine Combustion Chamber. MEEG 595 Graduate Seminar I - Fall 2015. The Petroleum Institute, Abu Dhabi, UAE.