Alireza Aghaei

Ph.d in Mechanical Engineering(Energy Conversion)

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- **Main Field of Activities**

  Analysing the flow field, heat transfer and entropy generation of fluids and nanofluids in various enclosures under different circumstances (Natural convection, Forced convection, Mixed convection, Under the influence of magnetic field, Considering Brownian motions and … , in both laminar and turbulent flow regimes) with the aid of fortran programming language

  Thesis

  * Bachelor's Degree – **Feasibility of using solar energy in industry**

  * Master's Degree – **Investigation of the effect of magnetic field on fluid's flow, heat transfer and entropy generation in trapezoidal enclosure for nanofluids with various properties**

  * Ph.D. Degree – **Numerical study of turbulent flow field, heat transfer and entropy generation of Oil-Copper Oxide-MWCNT hybrid nanofluid in trapezoidal enclosure under the effect of magnetic field with measuring it's viscosity**

  Completed Research Projects

1 – "**Numerical study of nanofluid's heat transfer in an enclosure with central heat source and presenting correlations for nusselt number**"

Executer: Sheikhzadeh, Ghanbar Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza. Date of Approval: 20th April 2013, Starting Date: 20th April 2013, Date of Completion: 21st September 2013.

2 – "**Numerical study of flow field and heat transfer of nanofluids with variable propeties in a trapezoidal enclosure of porous medium**"

Executer: Sheikhzadeh, Ghanbar Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza. Date of Approval: 10th December 2013, Starting Date: 8th January 2014, Date of Completion: 8th July 2014.

3 – "**Numerical investigation of fluid's flow, heat transfer and entropy generation in natural convection of nanofluids with variable properties in an enclosure with two circular heat sources**"

Executer: Khorasanizadeh, Hossein. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza. Date of Approval: 15th December 2014, Starting Date: 16th December 2014, Date of Completion: 4th May 2015.

4 – **"Investigation of parameters influencing entropy generation of nanofluid's turbulent flow in channels and micro channels**"

Executer: Sheikhzadeh, Ghanbar Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza., Abbaszadeh, Mahmood.

5 – **"Investigation of the effect of uncertainty, various models of viscosity and heat transfer coefficient on flow field, heat transfer and entropy generation in mixed convection of nanofluids in a trapezoidal enclosure**"

Executer: Arefmanesh, Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza.

6 – "**Numerical investigation of fluid's flow, heat transfer and entropy generation in natural convection of nanofluids in a Γ shaped enclosure**"

Executer: Abbasian, Ali Akbar. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza.

7 – "**Numerical study of flow field, heat transfer, entropy generation and the effects of magnetic field on various nanofluids with considering dependant models on Brownian motion in a triangular enclosure**"

Executer: Sheikhzadeh, Ghanbar Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza., Haj Ahmadi, Maryam.

8 – "**Investigation of the effect of nanoparticle's shape on flow field and heat transfer of nanofluids**"

Executer: Sheikhzadeh, Ghanbar Ali. Co-workers: Aghaei, Alireza., Soleimani, Samereh.

Research Projects in Progress

1 – **"Investigation of the effect of Ultrasonication's time on flow field and heat transfer of non-newtonian fluids"**

Executer: Arefmanesh, Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza.

2 – **"Investigation of the effect of Lorentz force on flow field and heat transfer in natural convection of nanofluids in an enclosure with separate heat sources"**

Executer: Abbasian, Ali Akbar. Co-workers: Aghaei, Alireza., Abedi, Farzad.

3 – **"Investigation of the effect of radiational heat on flow field and temperature of water/f-MWCNT nanofluid in a triangular enclosure"**

Executer: Sheikhzadeh, Ghanbar Ali. Co-workers: Aghaei, Alireza., Ehteram, Hamidreza.

ISI papers

Aremanesh, **Alireza Aghaei,** Ehteram	Vol. 40, No. 2, 15 January 2016, pp 815–831 http://www.sciencedirect.com/ science/article/pii/S0307904X15007052 https://doi.org/10.1016/j.apm.2015.10.043	Mixed convection heat transfer in a CuO-water filled trapezoidal enclosure, effects of various constant and variable properties of the nanofluid	**0307-904X**	**Applied Mathematical Modelling**
Alireza Aghaei, Khorasanizadeh, Sheikhzadeh, Abbaszadeh	Vol. 403, 1 April 2016, pp. 133–145 http://www.sciencedirect.com/ science/article/pii/S0304885315308398 https://doi.org/10.1016/j.apm.2015.10.043	Numerical study of magnetic field on mixed convection and entropy generation of nanofluid in a trapezoidal enclosure	**0304-8853**	**Journal of Magnetism and Magnetic Materials**
Alireza Aghaei, Sheikhzadeh, Ehteram, Hajiahmadi	Vol. 9, No. 1, pp. 147-156- January 2016 jafmonline.net/JournalArchive/ download?file_ID=38969&issue_ID=224	Numerical Investigation of Mixed Convection Fluid Flow, Heat Transfer and Entropy Generation in Triangular Enclosure Filled with a Nanofluid	**1735-3572**	**Journal of Applied Fluid Mechanics**
Alireza Aghaei Abbasian Abedi	Vol. 9, No. 3, April 2016- pp. 1175-1187, jafmonline.net/JournalArchive/ download?file_ID=39813&issue_ID=228	Analysis of magnetic field effects on distributed heat sources in a nanofluid-filled enclosure by natural convection	**1735-3572**	**Journal of Applied Fluid Mechanics**
Hemmat Esfe, Abbasian Arani, Wei-Mon Yan Ehteram, **Alireza Aghaie,** Afranda	Vol. 92, January 2016, pp. 76–82 http://www.sciencedirect.com/ science/article/pii/S0017931015303409 https://doi.org/10.1016/ j.ijheatmasstransfer.2015.08.036	Natural convection in a trapezoidal enclosure filled with carbon nanotube–EG–water nanofluid	**0017-9310**	**International Journal of Heat and Mass Transfer**
Alireza Aghaei Sheikhzadeh Ehteram	Vol. 3, No. 1, pp 37–45-2015 http://tpnms.usb.ac.ir/ article_1807_293.html	MHD natural convection and entropy generation of variable properties nanofluid in a triangular Enclosure	**2322-3634**	**Journal of Transport Phenomena in Nano and Micro Scales (TPNMS)**
Alireza Aghaei sheikhzadeh dastmalchi, Forozande	Vol. 6, No. 2, June 2015, pp. 577–585 http://www.sciencedirect.com/ science/article/pii/S2090447914001798 https://doi.org/10.1016/j.asej.2014.11.015	Numerical investigation of turbulent forced-convective heat transfer of Al2O3–water nanofluid with variable properties in tube	**2090-4479**	**Ain Shams Engineering Journal**

khorasanizadeh mohamadi, **Alireza Aghaei**	Vol. 5, No. 2, 2014, pp. 173–183 *dosi.org/ijee/5(2)14/9.pdf* http://citeseerx.ist.psu.edu/viewdoc /download?doi=10.1.1.665.3188&rep=rep1&type=pdf	The Potential and Characteristics of Solar Energy in Yazd Province, Iran	**2079-2115**	**Iranica Journal of Energy & Environment**
khorasanizadeh **Alireza Aghaei** Ehteram, dehghani, hatami	Vol. 5, No. 3, 2014, pp. 224–232 http://idosi.org/ijee/5(3)14/1.pdf http://www.ijee.net/Journal/ijee/vol5/no3/1.pdf	Attaining Optimum Tilts of Flat Solar Surfaces Utilizing Measured Solar Data: Case Study for Ilam, Iran	**2079-2115**	**Iranica Journal of Energy & Environment**
Alireza Aghaei Sheikhzadeh Khorasanizadeh Ehteram	Vol. 15, No. 1, 2014 pp. 28–38 لینک مقاله: http://jmee.isme.ir/article_19597.html	Effect of magnetic field on heat transfer of nanofluid with variable properties on the inclined enclosure	**9727-1605**	**ISME JOURNAL**
Ehteram abbasian Sheikhzadeh **Alireza Aghaei**	Vol. 4, No. 1, 2016, pp. 19–28 http://tpnms.usb.ac.ir/article_2216_359.html	The effect of various conductivity and viscosity models considering Brownian motion on nanofluids mixed convection flow and heat transfer	**2322-3634**	**Journal of Transport Phenomena in Nano and Micro Scales (TPNMS)**
Sheikhzadeh **Alireza Aghaei** Ehteram Abbaszadeh	**DOI REFERENCE: 10.2298/TSCI151112070S Vol. 20, No. 6, 2016, pp. 2037–2050 http://thermalscience.vinca.rs/2016/6/23**	Analytical study of parameters affecting entropy generation of nanofluid turbulent flow in channel and micro-channel	**0354-9836**	**THERMAL SCIENCE International Scientific Journal**
Hemmat Esfe , Abbasian Arani , Wei-Mon Yan , **Alireza Aghaei**, Afrand ,Nima Sina	**Accept DOI REFERENCE: 10.2298/TSCI160225216E Link: http://www.doiserbia.nb.rs/ Article.aspx?id=0354-98361600216E#.WAO69vTy3s8**	Mixed convection of functionalized dwcnt/water nanofluid in baffled lid-driven cavities	**0354-9836**	**THERMAL SCIENCE, International Scientific Journal**
Mohammad Hemmat Esfe, Ali Akbar Abbasian Arani, Wei-Mon Yan, **Alireza Aghaei**	**Volume 121, February 2017, Pages 21–32 http://www.sciencedirect.com/ science/article/pii/S0020740316311031**	**Natural convection in T-shaped cavities filled with water-based suspensions of COOH-functionalized multi walled carbon nanotubes**	**0020-7403**	**International Journal of Mechanical Sciences**
Hemmat Esfe ,Ali Akbar Abbasian Arani, **Alireza Aghaei**, Somchai Wongwises	**YEAR 2017, VOLUME 13, PAGES [1-13] January 24, 2017— - http://www.eurekaselect.com/node/149666/article**	**Mixed Convection Flow and Heat Transfer in an Up-Driven, Inclined, Square Enclosure Subjected to DWCNT-Water Nanofluid Containing Three Circular Heat Sources**	**1573-4137**	**Current Nanoscience**
Ali Akbar Abbasian Arani, Ahmad Ababaei, , Ghanbar Ali Sheikhzadeh, **Alireza Aghaei**	**http://www.sciencedirect.com/ science/article/pii/S1110016817301278** revised 28 January 2017; accepted 29 March 2017	**Numerical simulation of double-diffusive mixed convection in an enclosure filled with nanofluid using Bejan's heatlines and masslines**	**1110-0168**	**Alexandria Engineering Journal**
Mohammad Hemmat Esfe, Ali Akbar Abbasian Arani, Wei-Mon Yan, **Alireza Aghaei**	**VOLUME: 13 Year: 2017 354-363 DOI:** 10.2174/1573413713666170405155255	**Numerical study of mixed convection inside a Γ-shaped cavity with Mg(OH2)-EG nanofluids**	**1573-4137**	**Current Nanoscience**
A. Ababaei, A.A. Abbasian Arani and A. **Aghaei**	jafmonline.net/JournalArchive /download?file_ID=43830&issue_ID=245 Vol. 10, No. 6, pp. 1759-1772, 2017. DOI: 10.18869/acadpub.jafm.73.243.27364	**Numerical Investigation of Forced Convection of Nanofluid Flow in Microchannels: Effect of Adding Micromixer**	**1735-3572**	**Journal of Applied Fluid Mechanics**

Sheikhzadeh, **Alireza Aghaei**, soleimani	**Volume 6, Issue 1, Winter and Spring 2018, Page 27-38 DOI: 10.22111/tpnms.2018.3520 http://tpnms.usb.ac.ir/article_3520.html**	**Effect of nanoparticle shape on natural convection heat transfer in a square cavity with partitions using water-SiO2 nanofluid**	**2322-3634**	**Journal of Transport Phenomena in Nano and Micro Scales (TPNMS)**
Pourmohamadian, Sheikhzadeh, **A. Aghaei**, H. Ehteram, M. Adibi**,**	**Accept http://thermalscience.vinca.rs/online-first/2553**	**Investigating the effect of Brownian motion models on heat transfer and entropy generation in nanofluid forced convection**	**0354-9836**	**THERMAL SCIENCE, International Scientific Journal**
A. Aghaei, H. khorasanizadeh, Gh.A.Sheikhzadeh,	**Heat and Mass Transfer DOI 10.1007/s00231-017-2112-6 https://link.springer.com/ article/10.1007/s00231-017-2112-6** January 2018, Volume 54, Issue 1, pp 151–161	**Measurement of the dynamic viscosity of hybrid engine oil -Cuo-MWCNT nanofluid, development of a practical viscosity correlation and utilizing the artificial neural network**	**0947-7411**	**Heat and Mass Transfer**