Curriculum Vitae of Ahmad Sohankar Esfahani

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Research Area

Turbulence Modeling
Computational Fluid Dynamics (CFD)
Heat Transfer Enhancement (micro/mini/macro devices)
Flow over bluff bodies
Experimental Fluid Mechanics

Activity and Success

The top 2 percent of the world's most highly cited researchers (1996-2022)

Reviewer of many papers, e.g. for the following Journals

Journal of Fluid Mechanics
Physics of Fluids
International Journal of Heat and Mass Transfer
Journal of Wind Engineering & Industrial Aerodynamics
Experimental Thermal and Fluid Science
International Journal of Heat and Fluid Flow
International Journal of Thermal Sciences
Ocean Engineering
Journal of Fluids and Structures
Computers and Fluids
Journal of Fluids Engineering (ASME)
Aerospace Science and Technology
Flow, Turbulence and Combustion
Journal of Turbulence
European Journal of Mechanics / B Fluids

Qualifications:

- **Post Doc**., Department of Thermo and Fluid Dynamics, Chalmers University of Technology, Gothenburg, Sweden, 1999.

- **PhD**, Department of Thermo and Fluid Dynamics, Chalmers University of Technology, Gothenburg, Sweden, 1998.

- **M.SC.**, Mechanical Eng. Dept., Isfahan University of Technology, Isfahan, Iran, 1991.

- **B.SC**., Mechanical Eng. Dept., University of Science and Technology, Tehran, Iran, 1985.

Teaching experience:

Turbulence/ Turbulence Modeling
CFD I, II
Continuum Mechanics
Boundary Layers
Advanced Fluid Mechanics
Convective Heat Transfer
Gas Dynamics
Fluid Mechanics I, II
Heat Transfer I, II
Heat Exchangers Design
Refrigeration

Publications
A: Journal papers

1. A. Sohankar, M. Gharehkhani, "The effects of external magnetic fields on the flow and heat transfer in a three-dimensional microchannel," **Numerical Heat Transfer, Part A**: Applications, pp. 1-25, 2023. (**ISI**)
2. A. Sohankar, A. Joulaei, M. Mahmoodi, "Fluid flow and convective heat transfer in a rotating rectangular microchannel with various aspect ratios," **International Journal of Thermal Sciences**, vol. 172, p. 107259, 2022. (**ISI**)
3. A. Sohankar, A. R. Bahmani, M. R. Rastan, An LES study of the wake flow dynamics and heat transfer characteristics of two side-by-side finite wall-mounted square cylinders, **Ocean Engineering** 26 (2022) 113104, https://doi.org/10.1016/j.oceaneng.2022.113104. (**ISI**)

4. A. Mashhadi, A. Sohankar, Two- and three-dimensional simulations of flow and heat transfer around rectangular cylinders, ***Computers & Fluids***, 249 (2022) 105689, https://doi.org/10.1016/j.compfluid.2022.105689. (**ISI**)
5. M. Mahmoodi, A. Sohankar, A. Joulaei, "Investigations of nanofluid flow and heat transfer in a rotating microchannel using single-and two-phase approaches," **Numerical Heat Transfer**, Part A: Applications, pp. 1-36, 2022. (**ISI**)
6. M. R. Rastan, H. Shahbazi, A. Sohankar, Md. Mahbub Alam, Y. Zhou, The wake of a wall-mounted rectangular cylinder: Cross-sectional aspect ratio effect, ***Journal of Wind Engineering and Industrial Aerodynamics***, 213 (2021) 104615, https://doi.org/10.1016/j.jweia.2021.104615. (**ISI**)
7. F. Freidooni, A. Sohankar, M. R. Rastan, E. Shirani, Flow field around two tandem non-identical-height square buildings via LES, **Building and Environment** (2021), 107985, https://doi.org/10.1016/j.buildenv.2021.107985. (**ISI**)
8. A. Mashhadi, A. Sohankar, M. M. Alam, Flow over rectangular cylinder: Effects of cylinder aspect ratio and Reynolds number, Int. **International Journal of Mechanical Sciences,** 195 (2021), 106264, https://doi.org/10.1016/j.ijmecsci.2020.106264. (**ISI**)
9. J. Aboueian, A. Sohankar, M. R. Rastan, M. Ghodrat, An experimental study on flow over two finite wall-mounted square cylinders in a staggered arrangement, **Ocean Engineering**, 240 (2021) 109954, https://doi.org/10.1016/j.oceaneng.2021.109954. (**ISI**)
10. M. R. Rastan, A. Sohankar, M. M. Alam, Flow and heat transfer across two inline rotating cylinders: Effects of blockage, gap spacing, Reynolds number, and rotation direction, **International Journal of Heat and Mass Transfer,** 174 (2021), 121324, https://doi.org/10.1016/j.ijheatmasstransfer.2021.121324. (**ISI**)
11. Kazemi Esfeh, M., Sohankar, A., Shirani, E., Influence of rounding corners on the wake of a finite-length cylinder: an experimental study., **International Journal of Heat and Fluid Flow** 91 (2021) 108854, https://doi.org/10.1016/j.ijheatfluidflow.2021.108854. (**ISI**)
12. M Kazemi Esfeh, A Sohankar, AR Shahsavari, MR Rastan, M Ghodrat, M Nili, Experimental and numerical evaluation of wind-driven natural ventilation of a curved roof for various wind angles, **Building and Environment**, 205 (2021), 108275. **(ISI)**

13. M. R. Rastan, A. Sohankar, D. J. Moreau, C. J. Doolan, M. Awasthi, Modulation of aerodynamic characteristics of a finite wall-mounted square cylinder through steady jet injection, **Exp. Therm. Fluid Sci.** 112 (2020), 109976, https://doi.org/10.1016/j.expthermflusci.2019.109976. (**ISI**)

14. A. Sohankar, E. Rangraz, M. Khodadadi, M. M. Alam, Fluid flow and heat transfer around single and tandem square cylinders subjected to shear flow, **J. Braz. Soc. Mech. Sci. and Eng.** 42 (2020), 414, https://doi.org/10.1007/s40430-020-02484-2. (**ISI**)

15. Sayed Reza Rahnamaei, Sayed Morteza Saghaian Nejad, Amir Rashidi, Ahmad Sohankar, Dynamic thermal model for winding temperature of an SRM in an integrated battery charger utilized in electric vehicles, **IEEE Transactions on Energy Conversion**, 36, 1766-1775, 2020. (**ISI**)

16. Alam, M., Abdelhamid, T., Sohankar. A., 2020. Effect of cylinder corner radius and attack angle on heat transfer and flow topology. **International Journal of Mechanical Sciences**. 175, 105566.

17. A. Sohankar, M. Khodadadi, E. Rangraz, M. M. Alam, Control of flow and heat transfer over two inline square cylinders, **Phys. Fluids** 31 (2019), 123604, https://doi.org/10.1063/1.5128751. (**ISI**)

18. A. Sohankar, M. Riahi, and E. Shirani, "Numerical study of water/Al2O3 nanofluid forced convection in a rotating hydrophilic and hydrophobic microchannel," **Journal of Applied Fluid Mechanics**, vol. 12, pp. 219-231, 2019. (**ISI**)

19. MR Rastan, A Sohankar, C Doolan, D Moreau, E Shirani, MM Alam, Controlled flow over a finite square cylinder using suction and blowing, **International Journal of Mechanical Sciences** 156, 410-434, 2019. **(ISI)**

20. A. Sohankar, M. Abbasi, M. Nill-Ahmadabadi, M. Alam, F. Zafar, Experimental study of the flow around two finite square cylinders, **Arch. Mech.** 70 (2018) 457–480. (**ISI**)

21. A Sohankar, M Najafi, Control of vortex shedding, forces and heat transfer from a square cylinder at incidence by suction and blowing, **International Journal of Thermal Sciences** 129, 266-279, 2018. **(ISI)**

22. A. Sohankar, M. Kazemi Esfeh, H. Pourjafari, Md. Mahbub Alam and Longjun Wang, Features of the flow over a finite length square prism on a wall at various incidence angles, **Wind and Structures**

26 (2018), 317-329, https://doi.org/10.12989/was.2018.26.5.317. (**ISI**)

23. M. R. Rastan, A. Sohankar, M. M. Alam, Low-Reynolds-number flow around a wall-mounted square cylinder: Flow structures and onset of vortex shedding, **Phys. Fluids** 29 (2017), 103601, https://doi.org/10.1063/1.4989745. (**ISI**)
24. Sohankar A., Riahi M., Shirani E., Numerical investigation of heat transfer and pressure drop in a rotating U-shaped hydrophobic microchannel with slip flow and temperature jump boundary conditions, **Applied Thermal Engineering**, 117: 308–321, 2017 (**ISI**)
25. Aboueian J., Sohankar A., Identification of flow regimes around two staggered square cylinders by a numerical study, **Theoretical and Computational Fluid Dynamics**, 31:295–315, 2017 **(ISI)**
26. Kanikzadeh M. and Sohankar A., Thermal performance evaluation of the rotating U-shaped micro/mini/macrochannels using water and nanofluids, **Numerical Heat Transfer, Part A**., 70: 650–672, 2016 (**ISI**)
27. Behfard M. and Sohankar A., Numerical investigation for finding the appropriate design parameters of a fin-and-tube heat exchanger with delta-winglet vortex generators, **Heat Mass Transfer**, DOI 10.1007/s00231-015-1705-1, 52:21–37, 2016 **(ISI)**
28. Kanikzadeh M. and Sohankar A., Numerical Investigation of Forced Convection Flow of Nanofluids in Rotating U-Shaped Smooth and Ribbed Channels, **Heat Transfer Engineering**, DOI: 10.1080/01457632.2015.1089739, 37(10):840–861, 2016
29. Afshin M., Sohankar A., Dehghan Manshadi M., Kazemi Esfeh M., An experimental study on the evaluation of natural ventilation, performance of a two-sided wind-catcher for various wind angles, **Renewable Energy**, 85:1068-1078, 2016 (**ISI**)
30. Nikfarjam F., A. Sohankar, Study of hysteresis associated with power-law fluids past square prisms arranged in tandem, **Ocean Engineering**, 104:698–713, 2015 (**ISI**)
31. Sohankar A., Mohagheghian S., Dehghan A. A. and Dehghan Manshadi M., A smoke visualization study of the flow over a square cylinder at incidence and tandem square cylinders, **Journal of Visualization,** DOI 10.1007/s12650-015-0275-0, 18:687–703, 2015 (ISI)
32. Mirzaei M., Sohankar A.,The evaluation of a detached eddy simulation based on the k–ω–υ2–f model with three flow configurations, **Aerospace Science and Technology**, 43:199–212, 2015 (ISI)
33. Sohankar A., Khodadadi M. and Rangraz E., Control of fluid flow and heat transfer around a square cylinder by uniform suction and blowing at low Reynolds numbers, **Computers & Fluids**, 109: 155–167, 2015 **(ISI)**

34. Sohankar A.. A LES study of the flow interference between tandem square cylinder pairs, **Theor. Comput. Fluid Dyn.** , DOI 10.1007/s00162-014-0329-2, 28:531–548, 2014 (**ISI**)
35. Saeidinezhad A., Sohankar A. and Dehghan A. A., Experimental Study of the Downstream Flow of a Cylinder with Three Different Cross Sections by Hot Wire Anemometry, **Amirkabir Journal of Science & Research (Mechanical Engineering),** Vol. 46, No. 1, pp. 13-23, 2014 (**ISC**) (in Farsi)
36. Mirzaei M., Sohankar A., Davidson L. and Innings F., Large Eddy Simulation of the flow and heat transfer in a half-corrugated channel with various wave amplitudes, **International Journal of Heat and Mass Transfer**, 76: 432-446, 2014. (**ISI**)
37. Mirzaei M. and Sohankar A. Numerical study of convective heat transfer and fluid flow around two side by side square cylinders using $k-\omega-\bar{v}^2-f$ turbulence model, **Heat and Mass Transfer**, DOI 10.1007/s00231-013-1216-x, 49:1755–1769, 2013 (**ISI**)
38. Mirzaei M., Davidson L., Sohankar A. and Innings F., The effect of corrugation on heat transfer and pressure drop in channel flow with different Prandtl numbers, **International Journal of Heat and Mass Transfer**, 66: 164-176, 2013 (**ISI**)
39. Movahedi A., Sohankar A. and Dehghan Manshadi M., Experimental investigation of turbulent flow around 3D square cylinder with wall effect, **Sharif Journal (Mechanical Engineering)**, 3(30) No. 1:65-77, 2013 (**ISC**) (in Farsi)
40. Nikfarjam F. and Sohankar A., Power-law fluids flow and heat transfer over two tandem square cylinders: Effects of Reynolds number and Power-law index, **Acta Mechanica**, Vol. 224, Issue 5, pp. 1115-1132, 2013 (**ISI**)
41. Mirzaei M. and Sohankar A., Heat transfer augmentation in plate finned tube heat exchangers with vortex generators: A comparison of round and flat tubes, **Iranian Journal of Science & Technology**: Transaction B: Engineering, Vol. 37, No. M1, pp 39-51, 2013 (**ISI**)
42. Malekzadeh S., Sohankar A., Reduction of fluid forces and heat transfer on a square cylinder in a laminar flow regime using a control plate, ***I. Journal of Heat and Fluid Flow*** , Vol. 34, pp. 15-27, 2012 (**ISI**)
43. Sohankar A., A numerical investigation of the flow over a pair of identical square cylinders in a tandem arrangement, ***I. Journal for Numerical Methods in Fluids***, 2011. **(ISI)** Vol. 70, pp. 1244-1257, 2012 (ISI)

44. Lesani M., Rafeeyan M., Sohankar A. Dynamic Analysis of small pig through two and three dimensional liquid pipeline, **Journal of Applied Fluid Mechanics** (JAFM), Vol. 5, No. 2, pp. 75-83, 2012 (**ISI**)
45. Sohankar A., Heat transfer and fluid flow through a ribbed passage in staggered arrangement, **Iranian Journal of Science & Technology**: Transaction B: Engineering, Vol. 34, No. B5, pp. 471-485, 2010 (**ISI**)
46. Nazari M.R., Sohankar A., Malekzadeh S. and Alemrajabi A. Reynolds-averaged Navier–Stokes simulations of unsteady separated flow using the $k-\omega-\upsilon 2-f$ model, ***Journal of Turbulence***, Vol. 10, No. 34, pp. 1-13, 2009 **(ISI)**
47. Sohankar A., Etminan A., Forced-convection heat transfer from tandem square cylinders in cross flow at low Reynolds numbers, ***I. Journal for Numerical Methods in Fluids***, Vol. 60, pp. 733-751, 2009. **(ISI)**
48. Sohankar A. A. Large eddy simulation of flow past rectangular section cylinders: aspect ratio effects, ***Journal of Wind Engineering and Industrial Aerodynamics***, Vol., 96, pp.640-655, 2008. **(ISI)**
49. Sohankar A., Hopf bifurcation, vortex shedding and near wake study of a heated cylinder in cross flow, **Iranian Journal of Science & Technology**: Transaction B: Engineering, Vol. 31, No. B1, pp. 31-47, 2007. (**ISI**)
50. Sohankar A., Heat transfer augmentation in a rectangular channel with a vee-shaped vortex generator, ***I. Journal of Heat and Fluid Flow***, Vol. 28, pp. 306-317, 2007. (**ISI**)
51. Sohankar A., Flow over a bluff body from moderate to high Reynolds numbers using large eddy simulation, ***Computers & Fluids***, Vol. 35, pp. 1154-1168, 2006 (**ISI**)
52. Sohankar A., The LES and DNS simulations of heat transfer and fluid flow in a plate-fin heat exchanger with vortex generators, **Iranian Journal of Science & Technology**: Transaction B: Technology, Vol. 28, No. B4, pp. 443-452, 2004. (**ISI**)
53. Sohankar A., DAVIDSON, L., Effect of Inclined Vortex Generators on Heat Transfer Enhancement in a Three Dimensional Channel, ***Numerical Heat Transfer***. Part A. Vol. 39, No. 5, pp. 433-448, 2001. (**ISI**)
54. Sohankar A., Davidson, L. and Norberg, C., Large eddy Simulation of Flow Past a Square Cylinder: Comparison of Different Subgrid Scale Models, ***Journal of Fluids Engineering, ASME***, Vol. 122, pp. 39-47, 2000. **(ISI)**
55. Sohankar A., Norberg, C. and Davidson, L., Simulation of Three Dimensional Flow around a Square Cylinder at Moderate Reynolds Numbers, ***Physics of Fluids A***, Vol. 11, pp. 288-306, 1999. **(ISI)**

56. Sohankar A., Norberg, C. and Davidson, L., Low-Reynolds Flow around a Square Cylinder at Incidence: Study of Blockage, Onset of Vortex Shedding and Outlet Boundary Condition, ***I. Journal for Numerical Methods in Fluids***, Vol. 26, pp. 39-56, 1998. **(ISI)**
57. Sohankar A., Norberg, C. and Davidson, L., Numerical Simulation of Unsteady Low-Reynolds Number Flow Around Rectangular Cylinders at Incidence, ***Journal of Wind Engineering and Industrial Aerodynamics***, Vol., 69-71, pp.189-201, 1997. **(ISI)**

B: Conference papers:

Up to end of 2021, about 80 conference papers have been published.