Biographical Information: S.S. Sadhal

Permanent Address

Department of Aerospace & Mechanical Engineering
University of Southern California
Los Angeles, CA 90089--1453
Telephones: Daytime: (213) 740-0492

Citizenship: U.S. Citizen

EDUCATION

Ph.D. (1979) Engineering Science
California Institute of Technology
Pasadena, CA 91125.
(Thesis Advisor: Dr. Milton S. Plesset)

M.A.Sc. (1976) Mechanical Engineering
University of Toronto (Thesis Advisor: Dr. W.W. Martin)
Toronto, Ontario, Canada M5S 1A4.

B.A.Sc.(Honours) (1975) Nuclear/Thermal Engineering Science
University of Toronto (Bachelor's Thesis Advisor: Dr. Charles A. Ward).

PROFESSIONAL EXPERIENCE

University of Southern California
Department of Mechanical Engineering (now Aerospace & Mechanical Engineering)

Department Chairman (1997--98)
Associate Chairman (1992--97, 98--)
Acting Chairman (1990--92, 1996)
Professor (1993--)
Associate Professor (1984--93)
Assistant Professor (1982--84)

Children's Hospital Los Angeles
Visiting Professor, Radiology, 2012-

USC Keck School of Medicine
Professor of Ophthalmology (courtesy appointment), 2019-

University of Pennsylvania
Department of Mechanical Engineering
Assistant Professor (1978--1981)

Jet Propulsion Laboratory
NASA/ASEE Fellow (Summer 1990, 1991, 2000)
Pasadena, California

University of Cambridge
Senior Visitor (1988--1989), Department of Applied Mathematics & Theoretical Physics
Fellow of Clare Hall College (1988-89)
Life Fellow of Clare Hall College (1989--)

Professional Societies

American Society of Mechanical Engineers, 1978--
New York Academy of Sciences, 2002—
Association for Research on Vision and Ophthalmology, 2010-
American Physical Society, 2011-

Editorial Duties

ASME *Journal of Heat Transfer*, Associate Technical Editor (1999--2002).
Journal of Non-Equilibrium Thermodynamics, Member of Editorial Board (1998-2003)
Annals of the New York Academy of Sciences, Editor-in-Chief of biennial volume on Interdisciplinary Transport Phenomena (2002-08)
International Journal of Transport Phenomena, Guest Editor Interdisciplinary Transport Phenomena Conference Proceedings (2009)

Honors and Awards

Northrop Grumman Award for Teaching Excellence, April 2009
2007 James Harry Potter Gold Medal (ASME) in Thermodynamics, November 12, 2007
USC Α.Λ.Δ. Exemplary Performance of Professors Recognition, October 10, 2007.
Fellow of the American Society of Mechanical Engineers, 1996--
Life Fellow, Clare Hall College, University of Cambridge, 1989--
NASA/ASEE Fellow, Jet Propulsion Laboratory (1990, 1991)
Presidential Young Investigator Award (1984-89)
Postgraduate Scholarship, NRC Canada (Caltech/Toronto) (1975--78)
Helen E. Rogers Admission Scholar (Toronto) (1971--75)
First Wallberg Scholar (Toronto) (1972)
Professional Engineers' Prize (Toronto) (1972)
John M. Empey Prize (Toronto) (1972)
McKee-Gilchrist Prize (Toronto) (1972)
MacLennan-MacLeod Memorial Prize (Toronto) (1972)

Doctoral Students

1. Hasan N. Oguz, Ph.D. May 1987
2. So T. Vuong, Ph.D. December 1989
3. Kek-Kiong Tio, Ph.D. November 1990, Associate Professor, Malaysia Multimedia University
4. Ashok K. Das, Ph.D. December 1994
5. Hong Zhao, Ph.D. September 1999
6. Sungho Lee, PhD, May 2004, Research Engineer, Hyundai Corp., South Korea.
7. Channarong Asavatesanupap, PhD Spring 2007, Asst. Prof., Thammasat University, Thailand
8. Leslie King, PhD, September 2009, Research Engineer, Aerospace Corporation, El Segundo, CA
9. Hao-Kun Chu, PhD June 2011, Research Engineer, GM Corporation, Warren, MI
10. Mohammed Alhamli, PhD, August 2015, Assistant Professor, University of Kuwait.
11. Ramtin Sheikhhassani, PhD, May 2015, Lecturer, University of Southern California
12. Dejuan Kong, PhD, August 2016, Research Engineer, Boeing El Segundo.
13. Komsan Rattanakijsuntorn, PhD, May 2016, Asst. Prof, Ubon Ratchathani University, Thailand
14. Anahid Khoobyaar, passed PhD screening, 2017
15. Shuqi Zhang, Admitted 2017, passed PhD Screening

Postdoctoral Fellows and Research Associates

Alexey Rednikov, 1998-2005
Kenichi Ohsaka, 2000-2005
Anita Penkova 2009-2014. Presently, Research Assistant Professor, USC

FUNDED PROJECTS

Current Grants

1. "Mathematical Modeling and Analysis of Ocular Fluid Dynamics and Transport Phenomena for Retinal Drug Delivery,"
   National Eye Institute/National Institutes of Health, 2016-2022
   $2,000,000. Role: Principal Investigator
   Other Investigators: Rex Moats, CHLA, PI; Anita Penkova, Co-I; Mark Humayun, Co-I, Scott Fraser, Co-I
2. "Assessing Intravitreal Drug Distribution with an in Vitro Model of the Vitreous,"
   Children's Hospital Los Angeles & Allergan, Inc.,
   2010-2018
   Total funding through 2018: $681,000. Role: Principal Investigator
   Co-PI: Anita Penkova

Past Research Grants:

3. "New Graduate Program Development in Nuclear Engineering, Delivered via USC Distance Education Network (DEN),"
   US Nuclear Regulatory Commission, 2011-2014,
   $200,000. Role: Principal Investigator
4. "Transmission into and Response of Not-So-Soft Tissue; Acoustic Streaming in Blood Flow and in Tissues Environments" 2007—date
   H.-K. Cheng Foundation (USC), (co-I, Kirk Shung, BME)
   $20,000
5. "Non-Intrusive Measurement of Thermophysical Properties of Liquids by Electrostatic-Acoustic Hybrid Levitation."
   Funding Agency: NASA, Microgravity Program
   Co-Investigator: Dr. Kenichi Ohsaka, JPL
   Amount Funded: $485,000
   Period: 2000-2004.
6. "Ground-Based Studies of Internal Flows in Levitated Laser-Heated Drops"
   Funding Agency: NASA, Microgravity Program
   Co-Investigator: Dr. Eugene H. Trinh, JPL
   Amount Funded: $555,000
   Period: 1996-2000.
7. "Ground-Based Studies of Thermocapillary Flows in Levitated Drops "
   Funding Agency: NASA, Microgravity Program
   Amount Funded: $210,000
   Period: 1993-96
8. "Internal Flow of a Free Drop" (Space-Shuttle Glovebox Experiment)
   Funding Agency: NASA, Microgravity Program
   Co-Investigator: Dr. Eugene H. Trinh, JPL
   Amount Funded: $283,000 (managed by JPL)
   Period: 1995-97.
9. "Thermal Measurements and Analysis of Flows for Containerless Processing "
   Funding Agency: NASA, Microgravity Program
   Amount Funded: $20,000
   Award Periods: Summer 1990, 1991
10. "Droplet Evaporation from Heated Surfaces: Analysis of Systems"
    Funding Agency: National Science Foundation
    Amount Funded: $38,600
    Award Period: 1988-90
11. "Heat Transfer and Fluid Dynamics of Multiphase Systems."

Presidential Young Investigator Award
Funding Agency: National Science Foundation
Amount Funded: $170,000
Award Period: 1984-90
Other Funding of this Project:
TRW Systems, Inc.: $30,000 (1984-86)
Ralph M. Parsons Foundation: $10,000 (1984-85)

12. "Thermoelectric Control and Analysis of Microelectronic Systems."
Funding Agency: Charles Lee Powell Foundation
Amount Funded: $5,000
Award Period: 1987
13. "Hydrodynamics and Thermodynamics of Multiphase Systems "
Funded by: USC Faculty Research and Innovation Fund
Amount Funded: $ 16,500
Award Period: 1983-84.
14. "Laminar Condensation on a Droplet Translating in a Steam-Air Mixture" (with P. S. Ayyaswamy).
Funding Agency: National Science Foundation
Amount Funded: $60,770
Award Period: 1981-83
15. "A Theoretical Study of Dropwise Condensation"
Funded by: University of Pennsylvania Fellowship Fund
Amount Funded: $2,000
Award Period: Summer 1979.

Conference Grants

16. "Interdisciplinary Transport Phenomena VII:
NSF: $16,000
Period: 2011-12

17. "Interdisciplinary Transport Phenomena VI:
NSF: $12,500
Period: 2009-10

18. "Interdisciplinary Transport Phenomena V:
NSF: $10,000
Period: 2007-08

19. "Interdisciplinary Transport Phenomena in Microgravity and Space Sciences IV,"
NASA: $15,000
NSF: $10,000
Period: 2005-06

20. "Microgravity Transport Processes in Fluid, Thermal, Materials, and Biological Sciences III,"
NASA: $15,000
NSF: $10,000
Period: 2003-04

21. "Microgravity Transport Processes in Fluid, Thermal, Materials, and Biological Sciences II,"
NASA: $15,000
NSF: $10,000
Period: 2001-02

Invited Keynote/Plenary Lectures

1. Invited Plenary Lecture:" Drug Diffusion in Ocular Tissue: Mathematical Modelling and Experimentation," presented at the 26th International Conference of IAPS (online) on Advances in Differential Equations & Mathematical Modelling (IC-ADE-MM-2020), Jointly organized by School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi, India & International Academy of Physical Sciences (IAPS), December 18-20, 2020.
2. "Measurement of Thermophysical Properties of Highly Viscous Liquids by Non-Contact Methods Using Acoustic and Electrostatic Levitation," M.V. Krishna Murthy Distinguished Lecture, Sixth ISHMT-ASME Heat and Mass Transfer Conference, January 5-6, 2004, Kalpakkam India.
3. Non-Contact Measurement of Thermophysical of Liquids by Acoustic and Electrostatic Levitation," 4th ASME/JSME Joint Fluids Engineering Conference, July 6-11, 2003, Honolulu Hawaii.
4. "Non-Contact Measurement of Thermophysical Properties of Liquids by Acoustic and Electrostatic Levitation," BSME-ASME International Conference on Thermal Engineering, 31 December 2001 - 2 January 2002, Dhaka, Bangladesh. ISBN: 984-32-0029-0.
5. "Transport Processes during Protein Crystal Growth Under Microgravity and Earth Gravity Conditions," in "*Proceedings of the International Symposium on Recent Trends in Heat and Mass Transfer*," S. Mishra & S.S. Sadhal, Editors, pages 57-80, Tata McGraw-Hill, ISBN: 0-07-047448-6, January 7-9, 2002, Indian Institute of Technology, Guwahati, India
6. "Acoustically Levitated Drops," presented at the Summer School Lecture Series on Drops, Bubbles and Films," Universidad Internacional Menendez Pelayo, Santander, Spain, September 9--13, 1996.

Other Invited Lectures

1. "Non-intrusive theromphysical property measurement by acoustic and electrostatic levitation of liquids," Ninth International Balkan Conference on Applied Physics, Constanta, Romania, July 7-9, 2008.
2. Invited Speaker for 6 Lectures on Acoustic Streaming at "Ultrasound Standing Wave Action on Suspensions and Biosuspensions in Micro- and Macrofluidic Devices," at International Centre for Mechanical Sciences, Udine, Italy, June 7-11, 2010.

Invited Seminars

1. "Condensation and Evaporation of Drops on Solid Surfaces: Effects of Solid Properties and Contact Angle" University of California, Berkeley, CA (April 22, 1980).
2. "Condensation and Evaporation of Drops on Solid Surfaces: Effects of Solid Properties and Contact Angle," Georgia Institute of Technology, Atlanta, GA (May 12, 1980).
3. "Condensation and Evaporation of Drops on Solid Surfaces: Effects of Solid Properties and Contact Angle," Purdue University, West Lafayette, IN (January 13, 1981)
4. "Condensation and Evaporation of Drops on Solid Surfaces: Effects of Solid Properties and Contact Angle," University of Toronto, Toronto, Canada (Feb. 2, 1981).
5. "Flow Past Drops and Bubbles Partially Coated with Thin Films," U.S Armament Research Command, Aberdeen Proving Ground, MD (June 18, 1982).
6. "Flow Past Drops with Large Non-Uniform Radial Flow," Calif. Institute of Technology, Pasadena, CA (Dec. 12, 1983)
7. "Flow Past Drops with Large Non-Uniform Radial Flow," University of California, San Diego, CA (January 25, 1984).
8. "Thin Film Conductive Coatings for Surface Heating and Decontamination," U.S. Armament Research Command, Aberdeen Proving Ground, MD (November 29, 1984).
9. "Fluid Dynamics and Stability Analysis of Compound Drops and Bubbles," Department of Mechanical Engineering, Washington State University, Pullman, WA (December 2, 1987).
10. "Fluid Dynamics and Stability Analysis of Compound Drops and Bubbles," D.A.M.T.P., University of Cambridge (November 4, 1988).
11. "Fluid Dynamics and Stability Analysis of Compound Drops and Bubbles," Mathematics Institute, Oxford University (November 7, 1988).
12. "Fluid Dynamics and Stability Analysis of Compound Drops and Bubbles," Department of Mathematics, University College, London (March 20, 1989).

13. "Solid-Liquid Thermal Interaction During Phase Change at a Wall," Department of Mechanical & Aerospace Engineering, University of California, Irvine, CA (February 9, 1990).
14. "Phase Change Problems at Solid Surfaces: Effect of Solid Properties and Contact Angle," Idaho National Engineering Laboratory, Idaho Falls, ID (May 10, 1990).
15. "Thermal Analysis of Droplet Spray Evaporation from a Heated Solid Surface," Department of Mechanical Engineering, The Johns Hopkins University, Baltimore, MD (April 9, 1992).
16. "Multiphase Flows: Spray Droplet Evaporation from a Heated Surfaces," Naval Ocean Systems Center, San Diego, CA (October 7, 1992).
17. "Boundary Conditions for Heat Transfer in Heterogeneous Media," U.C. Santa Barbara, October 31, 1994.
18. "Perturbation Analysis of Acoustically Levitated Particles," University of Hong Kong, April 15, 1998.
19. Singular Perturbation Analysis of Acoustically Levitated Particles," University of California, Irvine, February 18, 1999.
20. "Singular Perturbation Analysis of Acoustically Levitated Particles," University of California, San Diego, April 21, 1999.
21. "Singular Perturbation Analysis and Experiments with Acoustically Levitated Particles," University of Twente, Enschede, The Netherlands, April 18, 2000.
22. "Theoretical Analysis and Experimentation with Acoustically Levitated Drops," University of Alberta, Edmonton, Canada, September 27, 2001.
23. "Non-Intrusive Techniques for Measuring Thermophysical Properties of Liquids using Acoustic and Electrostatic Levitation," Brookhaven National Laboratory, December 15, 2003.
25. "Singular Perturbation Analysis of Drops in Acoustic Levitation Fields," University of California, San Diego, April 21, 2008.
26. Invited Talk: "Acoustic Streaming with Drops, Bubbles and Particles: Singular Perturbation Analysis," Workshop on "Acoustic Streaming in Resonant Enclosures," University of Southampton, July 4, 2012.
27. "Measurement of Transport Parameters for Ocular Drug Delivery," University of California, San Diego, February 18, 2016.
28. "Singular Perturbation Analysis of Drops in Acoustic Levitation Fields," Department of Mechanical Engineering & Applied Mechanics, University of Pennsylvania, November 14, 2017.
29. "Diffusive Transport in the Vitreous Humor: Experimental and Analytical Studies," Invited Speaker at the Special Symposium in Honor of Dr. P.S. Ayyaswamy, University of Pennsylvania, February 9, 2018.
30. "Diffusive Transport in the Vitreous Humor for Ocular Drug Delivery," Presented at Tufts University, September 26, 2019,

PUBLICATIONS IN REFEREED JOURNALS

1. Sadhal, S.S. & Martin, W.W., "Heat Transfer through Drop Condensate using Differential Inequalities," *Int. J. Heat Mass Transfer* **20:** 1401-1407 (1977).
2. Martin W.W. & Sadhal, S.S.,"Bounds on the Transient Temperature Distribution due to a Buried Cylindrical Heat Source ", *Int. J. Heat Mass Transfer* **21:** 783-789 (1978)
3. Sadhal, S.S. & Plesset, M.S.,"Effect of Solid Properties and Contact Angle in Dropwise Condensation and Evaporation ", *Journal of Heat Transfer* **101:** 48-54 (1979).
4. Plesset, M.S. & Sadhal, S.S., "An Analytical Estimate of the Microlayer Thickness in Nucleate Boiling" *Journal of Heat Transfer* **101:** 180-183 (1979).
5. Sadhal, S.S., "Comments about Yang's Analysis on Droplets Evaporating from Solid Surfaces", *Letters Heat Mass Transfer* **6:** 149-155 (1979).
6. Sadhal, S.S., "Further Developments of Dropwise Condensation Theory -- Discussion," *J. Heat Transfer* **102:** 394 (1980).
7. Sadhal, S.S., "Transient Thermal Response of Two Solids in Contact over a Circular Disk," *Int. J. Heat Mass Transfer* **23:** 731-733 (1980).

8. Sadhal, S.S., "Transient Thermal Response Between Solids with Partially Contacting Interface," *Journal of Heat Transfer* **103:** 32-35 (1981).
9. Sadhal, S.S.,"Explicit Solutions to a Class of Mixed Boundary Value Problems," *Int. J. Engrg. Sci.* **19:** 1077-1082 (1981).
10. Plesset, M.S, & Sadhal, S.S., "On the Stability of Bubbles in Liquid-Gas Solutions" (invited paper at the IUTAM Symposium, Pasadena, CA, June 15-19, 1981), *Appl Sci. Res.* **38:** 133-141 (1982).
11. Bau, H.H. & Sadhal, S.S., "Heat Losses from a Fluid Flowing in a Buried Pipe," *Int. J. Heat Mass Transfer* **25:** 1621-1629 (1982).
12. Sadhal, S.S.,"A Note on the Thermocapillary Migration of a Bubble Normal to a Plane Surface," *Journal of Colliod and Interface Science* **95:** 283-285 (1983).
13. Sadhal, S.S. & Johnson, R.E., "Stokes Flow Past Bubbles and Drops Partially Coated with Thin Films. Part 1: Stagnant Cap of Surfactant Film -- Exact Solution," *J. Fluid Mech.* **126:** 237--250 (1983).
14. Johnson, R.E. & Sadhal, S.S.,"Stokes Flow Past Bubbles and Drops Partially Coated with Thin Films. Part 2: Thin Films with Internal Circulation - a Perturbation Solution," *J. Fluid Mech.***132:** 295--318 (1983).
15. Sadhal, S.S. & Ayyaswamy, P.S., "Flow Past a Drop with a Large Non-Uniform Radial Velocity," *J. Fluid Mech.* **133:** 65--81 (1983).
16. Chung, J.N., Ayyaswamy, P.S. & Sadhal, S.S., "Laminar Condensation on a Moving Drop. Part 1: Singular Perturbation Technique," *J. Fluid Mech.* **139:** 105--130 (1984).
17. Chung, J.N., Ayyaswamy, P.S. & Sadhal, S.S., "Laminar Condensation on a Moving Drop. Part 2: Numerical Solutions," *J. Fluid Mech.***139:**131--144 (1984).
18. Sadhal, S.S. & Oguz, H.N., "Stokes Flow Past Compound Multiphase Drops: Cases of Completely Engulfed Drops/Bubbles," *J. Fluid Mech.***160**: 511--529 (1985).
19. Johnson, R.E. & Sadhal, S.S., "Fluid Mechanics of Compound Multiphase Drops and Bubbles," Invited Review Article, Annual Review of Fluid Mechanics **17:** 289--320 (1985).
20. Gogos, G., Sadhal, S.S., Ayyaswamy, P.S. & Sundararajana, "Thin-Flame Theory for the Combustion of a Moving Liquid Droplet," *J. Fluid Mech.***171:** 121--144 (1986).
21. Oguz, H.N. & Sadhal, S.S.,"Growth and Collapse of Translating Compound Drops: Analysis of Fluid Mechanics and Heat Transfer," *J. Fluid Mech.* **179:** 105--136 (1987).
22. Sadhal, S.S. & Johnson, R.E., "On the Deformation of Drops and Bubbles with Varying Interfacial Tension", *Chem. Engrg. Comm.* **46:** 97--109 (1986).
23. Oguz, H.N. & Sadhal, S.S., "Effects of Soluble and Insoluble Surfactants on the Motion of Drops," *J. Fluid Mech.* **194:** 563--579 (1988).
24. Oguz, H.N. & Sadhal, S.S.,"Fluid Dynamics and Stability Analysis of a Compound Drop in an Electric Field," *Quart. J. Mech. Appl. Maths.* **42:** 65-83 (1989).
25. Wang, D.G., Sadhal, S.S. & Campbell, C.S., "Particle Rotation as a Heat Transfer Mechanism," *Int. J. Heat Mass Transfer* **32:** 1413 (1989).
26. Vuong, S.T. & Sadhal, S.S.,"Growth and Translation of a Liquid-Vapour Compound Drop in a Second Liquid. Part 1: Fluid Mechanics," *J. Fluid Mech.* **209:** 617-637 (1989).
27. Vuong, S.T. & Sadhal, S.S. "Growth and Translation of a Liquid-Vapour Compound Drop in a Second Liquid. Part 2: Heat Transfer," *J. Fluid Mech.* **209:** 639-660 (1989).
28. Sadhal, S.S.,"Heat Transport to a Slowly Growing Bubble on a Solid Surface", *Quart. J.Mech. Appl. Maths*. **42:** 476-493 (1989).
29. Ayyaswamy, P.S., Sadhal, S.S. & Huang, L.J, "Effect of Internal Circulation on the Transport to a Moving Liquid Drop," *Int. Comm. Heat Mass Transfer* **17:** 689-702 (1990).
30. Tio, K.-K. & Sadhal, S.S., "Analysis of Thermal Constriction Resistance with Adiabatic Circular Gaps," *J. Thermophysics Heat Transfer* **5:** 550-559 (1991).
31. Tio, K.-K. & Sadhal, S.S., "Thermal Constriction Resistance: Effect of Boundary Conditions and Contact Geometries," *Int. J Heat Mass Transfer* **35:** 1533--1544 (1992).
32. Tio, K.-K. & Sadhal, S.S.,"Thermal Analysis of Droplet Spray Evaporation from a Heated Surface," *J. Heat Transfer* **114:** 220--226 (1992).
33. Tio, K.-K. & Sadhal, S.S., "Droplet Evaporation from Heated Surfaces: Analysis of Multidrop Systems," *Int. J. Heat Mass Transfer* **35:** 1987--2004 (1992).

34. Das, A.K., & Sadhal, S.S., "Thermal Constriction Resistance: The Effect of Interstitial Fluid," *J. Heat Transfer* **114:** 1045--1048 (1992).
35. Sadhal, S.S., "Transient Heat Transfer from a Solid Sphere Translating at Low Reynolds Number: a Perturbation Solution at Low Peclet Number," *Heat and Mass Transfer* (formerly, Warme-und Stoffubertragung) **28:** 365--370 (1993).
36. Sadhal, S.S., "Solutions to a Class of Transport Problems with Radially Dominant Convection," *J. Appl. Math. Physics (ZAMP)* **44:** 314--332 (1993).
37. Tio, K.-K. & Sadhal, S.S., "Boundary Conditions for Stokes Flow Near a Porous Membrane," *Appl. Sci. Res*. **52:** 1--20 (1994).
38. Sadhal, S.S., Trinh, E.H. & Wagner, P., "Unsteady Spot Heating of a Drop in a Microgravity Environment," *Microgravity Science and Technology* **9:** 80--85 (1997).
39. Das, A.K. & Sadhal, S.S., "A Note on the Evaluation of Thermal Constriction Resistance for Finite Thickness Gaps," *J. Heat Transfer* **119:** 177--180 (1997).
40. Das, A.K. & Sadhal, S.S. "Analytical Solution for Constriction Resistance with Interstitial Fluid in the Gap," *Heat and Mass Transfer* **34:** 111-119 (1998).
41. Zhao, H., Sadhal, S.S. & Trinh, E.H., "Singular Perturbation Analysis of an Acoustically Levitated Sphere: Flow About the Velocity Node," *J. Acoust. Soc. Am.* **106:** 589-595 (1999).
42. Zhao, H., Sadhal, S.S. & Trinh, E.H.,"Internal Circulation in a Drop in an Acoustic Field," *J. Acoust. Soc. Am*. **106:** 3289-3295 (1999).
43. Das, A.K. & Sadhal, S.S. "Thermal Constriction Resistance Between Two Solids for Random Distribution of Contacts," *Heat and Mass Transfer* **35:** 101-111 (1999).
44. Ohsaka, K., Rednikov, A., Sadhal, S.S. & Trinh, E.H., "Noncontact technique for determining viscosity from the shape relaxation of ultrasonically levitated and initially elongated drops," *Rev. Sci. Instrum.*, **73:** 2091-2096 (2002).
45. Ohsaka, K., Rednikov, A. and Sadhal, S. S. "Thermal diffusivity coefficient of glycerin determined on an acoustically levitated drop" *Ann. New York Acad. Sci.*, vol. **974:** 124-131 (2002)
46. Ohsaka, K., Sadhal, S.S. and Rednikov, A., "Thermocapillary Flow Induced by Laser-Heating of an Acoustically Levitated Flattened Glycerin Drop," *J. Heat Transfer*, **124:**599 (2002).
47. Rednikov, A., Riley, N. & Sadhal, S.S., "The Behaviour of a Levitated Particle in Orthogonal Acoustic Fields," *J. Fluid Mech*., **486:** 1-20 (2003).
48. Ohsaka, K., Rednikov, A. & Sadhal, S.S., "Noncontact technique for determining the thermal diffusivity coefficient on acoustically levitated liquid drops," *Rev. Sci. Instrum*, **74:** 1107-1112 (2003).
49. Rednikov, A. and Sadhal, S.S., "Steady Streaming from an Oblate Spheroid due to Vibrations along its Axis," *J. Fluid Mech.* **499:** 345-380 (2004).
50. Sadhal, S.S., Rednikov, A.Y. & Ohsaka, K. "Shape Relaxation of a Liquid Drop in a Microgravity Environment," *Ann. New York Acad. Sci.*, **1027:** 447-463 (2004).
51. Rednikov, A.Y., Zhao, H., Sadhal, S.S. & Trinh, E.H., "Steady Streaming Around a Spherical Drop Displaced from the Velocity Antinode in an Acoustic Levitation Field," *Q. J. Mech. Appl. Math.* **59**: 377-397 (2006).
52. S.H. Lee, K. Ohsaka, A.Y. Rednikov & S.S. Sadhal, "Noncontact Thermophysical Property Measurement by Levitation of a Thin Liquid Disk," *Ann. New York Acad. Sci.*, **1077:** 75-95 (2006).
53. S.H. Lee, S.S. Sadhal & A.Y. Rednikov, "An analytical model for external streaming and heat transfer for a levitated flattened liquid drop," *J. Heat Transfer* **130:** 091602-1-8 (2008).
54. S.S. Sadhal, A.Y. Rednikov, and K. Ohsaka, "Non-intrusive theromphysical property measurement by acoustic and electrostatic levitation of liquids," *J. Optoelectronics and Adv. Materials* **10**(11): 2840 – 2853 (2008).
55. Channarong Asavatesanupap and S.S. Sadhal, "Transient dynamics of a rotating spherical liquid drop," *J. Engineering Mathematics* **64**:251–268 (2009)
56. Channarong Asavatesanupap and S.S. Sadhal, "Fluid dynamics of a particle with large vapor transport in Poiseuille flow," *Ann. New York Acad. Sci.***1161**: 268-276 (2009).
57. A.Y. Rednikov & S.S. Sadhal, "Acoustic/steady streaming from a motionless boundary and related phenomena: generalized treatment of inner streaming and examples, *J. Fluid Mech.* **667:** 426–462. (2011).

58. Hao-Kun Chu & S.S. Sadhal, "Fluid Flow Analysis of a Two-Dimensional Sessile Drop in Linear Shear Flow," *Int. J. of Transport Phenomena* **12:**199-210 (2011).
59. S.S. Sadhal, "Acoustofluidics 13: Analysis of Acoustic Streaming by Perturbation Methods," *Lab Chip*, **12**(13): 2292-2300 (2012). DOI: 10.1039/C2LC40202E [Invited review article].
60. S.S. Sadhal, "Acoustofluidics 15: Streaming with Sound Waves Interacting with Solid Particles," *Lab Chip*, **12**(15): 2600-2611 (2012). DOI: 10.1039/C2LC40243B
61. S.S. Sadhal, "Acoustofluidics 16: Acoustics streaming near liquid-gas interfaces: drops and bubbles," *Lab Chip*, **12**(16): 2771-2781 (2012). DOI: 10.1039/C2LC40283A
62. Leslie King, S.S. Sadhal, "Effect of surfactants on the growth and departure of bubbles from solid surfaces," *Heat Mass Transfer* **50**:373–382 (2014); DOI 10.1007/s00231-014-1293-5
63. Anita Penkova, Komsan Rattanakijsuntorn, S.S. Sadhal, Yang Tang, Rex Moats, Patrick M. Hughes, Michael R. Robinson, Susan S. Lee, "A technique for drug surrogate diffusion coefficient measurement by intravitreal injection," *Int. J. Heat Mass Transfer*, DOI:10.1016/j.ijheatmasstransfer.2013.11.002 [print version: vol **70:** 504–514 (2014)]
64. Dejuan Kong, Anita Penkova, S.S. Sadhal, "Oscillatory flow between two hemispheres for shearing protein solution," *ASME J. Fluids Engineering*, 2015. doi:10.1115/1.4030484. (presented at ASME International Mechanical Engineering Congress & Exposition, San Diego, 2013)
65. Dejuan Kong, Anita Penkova, S.S. Sadhal, "Oscillatory and streaming flow between two spheres due to combined oscillations *J. Fluid Mech***., 826:** 335_362. (2017). doi:10.1017/jfm.2017.449
66. K. Rattanakijsuntorn, A. Penkova and S. S. Sadhal, "Mass diffusion coefficient measurement for vitreous humor using FEM and MRI," *IOP Conf. Series: Materials Science and Engineering*, **297:** 012024: 1-9, 2018.
67. Anita Penkova, Rex Moats, Mark Humayun, Scott Fraser & S.S. Sadhal, "Diffusive transport in the vitreous humor," invited review article, *ASME J. Heat Transfer* **141**(5): 050801-1-050801-11 (2019). https://doi.org/10.1115/1.4042297
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2. Sadhal, S.S., 1984 "Exact Solutions for Steady and Unsteady Diffusion Problems for a Rectangular Prism: Cases of Complex Neumann Conditions," *22nd National Heat Transfer Conference*, Niagara Falls, NY, August 5-8, paper # 84HT83.
3. Plesset, M.S., & Sadhal, S.S., 1984 "Void Volume Growth in Superheated Liquids," ASME Winter Annual Meeting, New Orleans, LA, December 9-14, Session HT-5A.
4. Nansteel, M.W., Sadhal, S.S. & Ayyaswamy, P.S., 1986 "Discontinuous Boundary Temperatures in Heat Transfer Theory," ASME Winter Annual Meeting, Anaheim, CA, December 7--12. (ASME Publication: HTD-Vol. 60, pp 123--126).

5. Oguz, H.N. & Sadhal, S.S., 1987 "Direct Contact Heat Transfer with Change of Phase: Growth and Collapse Histories," 2nd ASME/JSME Thermal Engineering Joint Conference, Honolulu, HI, March 22-27.
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7. Das, A.K. & Sadhal, S.S. "The Effect of Clustering in Thermal Contact Resistance". In *Heat Transfer 1990*, pages 517-522, (Proceedings of the Ninth International Heat Transfer Conference, Jerusalem, August 1990).
8. Tio, K.-K. & Sadhal, S.S., "Thermal Analysis of Droplet Spray Evaporation from a Heated Surface," 28th National Heat Transfer Conference, Minneapolis, MN, July 28--31, 1991 [ASME Publ.: HTD--Vol. 162, pp 35--42, also *J. Heat Transfer*, 1992].
9. Das, A.K., & Sadhal, S.S.,"Thermal Constriction Resistance: The Effect of Interstitial Fluid," 28th National Heat Transfer Conference, Minneapolis, MN, July 28--31, 1991 [ASME Publ.: HTD--Vol. 173, pp 35--39, also J. Heat Transfer, **114**: 220--226 (1992)].
10. Sadhal, S.S., Trinh, E.H. & Wagner, P., "Unsteady Spot Heating of a Drop in a Microgravity Environment," ASME Winter Annual Meeting, Anaheim, November 1992.
11. Gopinath, A. & Sadhal, S.S., "Thermoacoustic Streaming Effects from a Sphere Subject to Time-Periodic Temperature Disturbances," Tenth International Heat & Mass Transfer Conference, Brighton, U.K., August 1994.
12. Zhang, B. & Sadhal, S.S., "Low Superheat Spray Droplet Evaporation from a Heated Solid Surface," AIChE Symposium Series, *Heat Transfer -- Atlanta 1993*, Vol. **89**, No. 295, pp. 17--25 (1993), presented at the 29th National Heat Transfer Conference, Atlanta.
13. Zhang, B. & Sadhal, S.S., "Low Superheat Spray Droplet Evaporation from a Heated Solid Surface," In *Heat & Mass Transfer 94*, pp. 521--526. Proc. First ISHMT-ASME Heat Mass Transfer Conf., Bhabha Atomic Research Center, Bombay, 1994.
14. Trinh, E.H. & Sadhal, S.S., "Acoustic Streaming and Ultrasonic Processing of Low Melting Point Materials," 1994 Int. Mech. Eng. Congress, Chicago, November 6--11, 1994. *In Heat Transfer in Microgravity Systems 1994*, ASME HTD-Vol. 290, pp 43--52.
15. Das, A.K. & Sadhal, S.S., "A Note on the Evaluation of Thermal Constriction Resistance for Finite Thickness Gaps," 31st National Heat Transfer Conference, Portland, Oregon, August 5--8, 1995.
16. M. Jin & Sadhal, S.S., "Thermal Boundary Conditions for Heterogeneous Solids," TMS Annual Meeting, Properties of Composites Session, Anaheim, Calif., February 4--8, 1996.
17. E.H. Trinh & S. S. Sadhal, "Visualization of Internal Flows in Differentially Heated Drops," Gordon Conference on Gravitational Effects in Physico-Chemical Systems, July 1995.
18. S.S. Sadhal, "Thermal Boundary Effects for Laminated Composite Solids," Proc. Third ISHMT-ASME Heat and Mass Transfer Conference, pp 269--274, Kanpur, India, December 29--31, 1997.
19. Zhao, H., Sadhal, S.S., & Trinh, E.H., "Internal Circulation in a Drop in an Acoustic Field," presented at ASME Fluids Engineering Summer Meeting, Washington DC, June 21-25, 1998. Paper No.: FEDSM98-5104.
20. S.K. Chung, E.H. Trinh & S.S. Sadhal, "Earth-Based and Microgravity Studies of a Spot-Heated Levitated Single Drops," Microgravity Fluid Physics and Heat Transfer Conference, United Engineering Foundation, September 19-24, 1999, Oahu, Hawaii.
21. E.H. Trinh, S.K. Chung & S.S. Sadhal, "Experimental Study of the Flows within a Levitated Spot-Heated Drop," Symposium on Energy Engineering (SEE 2000), January 9-12, 2000, Hong Kong.
22. E.H. Trinh, S.K. Chung & S.S. Sadhal, "Experimental Study of the Flows within a Levitated Spot-Heated Drop," Fourth ASME-ISHMT Heat and Mass Transfer Conference, January 12-14, 2000, Pune, India.
23. A. Ye. Rednikov, S.S. Sadhal and K. Ohsaka, "Heat Transfer from a Sphere Rotating in a Quiescent Fluid," National Heat Transfer Conference, June 10-12, 2001, Anaheim, Calif.
24. K. Ohsaka, A. Rednikov and S. S. Sadhal, "Acoustic Levitation Technique for Non-Contact Thermal Diffusivity Measurement of a Glycerin Drop," *Heat and Mass Transfer* 2002, S.K. Saha et. al., Eds.,Proceedings of the Fifth ISHMT-ASME Heat and Mass Transfer Conference, January 3-5, 2002, Kolkata, India, pp 779-783, Tata McGraw-Hill. ISBN: 0-07-047443-5.

25. Lee, S., Ohsaka, K, Rednikov, A. and Sadhal, S.S., "Thermocapillary Flow Analysis of Levitated Thin Liquid Disk," Paper No. IMECE2003- 42148, International Mechanical Engineering Congress and Exposition, November 15 –21, 2003, Washington DC.
26. Sadhal, S.S., Ohsaka, K. and Rednikov. A. "Noncontact technique for thermal diffusivity measurement using an acoustically levitated liquid drops," Paper No. HT2003-40536, Proceedings of NHTC 2003: National Heat Transfer Conference, Las Vegas, July 21-23, 2003
27. S.H. Lee, S.S. Sadhal & A.Y. Rednikov, "An analytical model for external streaming and heat transfer for a levitated flattened liquid drop," Paper No.: HT2007-32070, ASME-JSME Thermal Engineering Conference, July 8-12, 2007, Vancouver, British Columbia.
28. Dejuan Kong, Anita Penkova, S.S. Sadhal, "Oscillatory flow between two hemispheres for shearing protein solution," ASME International Mechanical Engineering Congress & Exposition, November 15-21, 2013, San Diego, Paper No.: IMECE2013-65663 PC
29. Mohammad AlHamli, Alexey Y. Rednikov and Satwindar S. Sadhal, "Perturbation analysis of flow about spherically pulsating bubble at the velocity node of a standing wave," *J. Acoust. Soc. Am.* **133**, 3238 (2013); http://dx.doi.org/10.1121/1.4805176,
21st International Congress on Acoustics 2-7 June 2013, Palais des congrès de Montréal
30. Mohammad AlHamli, S.S. Sadhal, "Steady streaming around a pulsating bubble located at the velocity node of a standing wave," INVITED PAPER, 169th Meeting of the Acoustical Society of America, May 18-21, 2015, Pittsburgh, PA. Session 1pPA3, *J. Acoust. Soc. Am.*, **137**, No. 4, Pt. 2, April 2015, pages 2222-2223.

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2. Sadhal, S.S., & Johnson, R.E., 1982 "Stokes Flow Past Drops and Bubbles Partially Coated with Thin Films " paper 53-d, AIChE Annual Meeting, November 14-19, Los Angeles, CA.
3. Sadhal, S.S., 1984 "Heat Transport to a Bubble on a Solid Surface: Thermal Interaction of the Microlayer with the Solid", ASME/AIChE 22nd National Heat Transfer Conference, Niagara Falls, NY, August 5-8, AIChE Symposium Series # 236, Vol. 80, pp. 1 (1984).
4. Sadhal, S.S., 1985 "Transient Heat Transfer from a Solid Sphere Translating at Low Reynolds Number: Perturbation Solution at Low Peclet Number ", Eighth National Heat Transfer Conference, Vsakhapatnam, India, December 29-31, pp. 297-303.
5. Sadhal, S.S., Ayyaswamy, P.S. & Stuempfle, Arthur K. "Thin Film Conductive Coatings for Surface Heating and Decontamination ", Fourth Army Conference on Applied Mathematics and Computing, Ithaca, NY, May 27--30, 1986.
6. Sadhal, S.S., "Flows Associated with Particles Having Strong Condensation or Evaporation", presented at *Engineering Science, Fluid Mechanics: A Symposium to Honor Dr. T.Y. Wu*, Pasadena, August 17--18, 1989.
7. Sadhal, S.S., "Solutions to Fluid Flow Problems with Particles Having Radially Dominant Convection", presented at the 29th Annual Technical Meeting, Society of Engineering Science, September 14--16, La Jolla, California.
8. Das, A.K. & Sadhal, S.S., "Thermal Constriction Resistance between Two Solids for Random Distribution of Contacts," Thermal Engineering Symposium Honoring Chancellor Tien, Berkeley, November 14, 1995.
9. Zhao, S., Sadhal, S.S., & Trinh, E.H., "Singular Perturbation Analysis of an Acoustically Levitated Sphere," Western States Section of the Combustion Institute, October 28--29, 1996.
10. E.H. Trinh, S.S. Sadhal, & L.G. Leal, "The Internal Flows and Nonlinear Dynamics of Free Drops and Bubbles," *Spacebound 97*, Montreal, May 1997.
11. Ohsaka, K., Rednikov, A., Sadhal, S. S. and Trinh, E. H. "The shape relaxation of ultrasonically levitated and initially elongated liquid drops: experimental results" presented at the 2nd Pan-Pacific Basin Workshop on Microgravity Sciences, Pasadena, CA, May 1-4, 2001.

12. Ohsaka, K., Rednikov, A. and Sadhal, S. S. "Thermal diffusivity coefficient of glycerin determined on an acoustically levitated drop" presented at the UEF Conference on Microgravity Transport Processes in Fluid, Thermal, Biological and Materials Sciences II, Banff, Alberta, Canada, September 30 – October 5, 2001.
13. Sadhal, S.S., Rednikov, A.Y. & Ohsaka, K. "Shape Relaxation of a Liquid Drop in a Microgravity Environment," presented at the "Microgravity Transport Processes in Fluid, Thermal, Biological and Materials Sciences III, Davos, Switzerland, August 14-19, 2003.
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15. Channarong Asavatesanupap and S.S. Sadhal, "Fluid dynamics of a particle with large vapor transport in Poiseuille flow," Paper No. ITP-07-85, presented at the "Interdisciplinary Transport Phenomena V: Fluid, Thermal, Biological, Materials and Space Sciences," October 14-19, 2007, Bansko, Bulgaria.
16. Hao-Kun Chu and S.S. Sadhal, Fliud flow analysis of a two-dimensional sessile drop in a linear shear flow," presented at the "Interdisciplinary Transport Phenomena VI: Fluid, Thermal, Biological, Materials and Space Sciences," October 4-9, 2009, Volterra, Italy.
17. Anita Penkova, S.S. Sadhal, Rex Moats, and Yang Tang & Komsan Rattanakijsuntorn, "MRI visualization of intravitreal drug transport and modeling," presented at the "*Interdisciplinary Transport Phenomena VI: Fluid, Thermal, Biological, Materials and Space Sciences*," September 19-23, 2011, Dresden, Germany.
18. "Effect of hydrodynamic shear on the kinetics of lysozyme nucleation and aggregation," Anita Penkova, S.S. Sadhal, Ted Lee, Paul Ronney & Chien-Hua Chen, presented at the "*Interdisciplinary Transport Phenomena VI: Fluid, Thermal, Biological, Materials and Space Sciences*," September 19-23, 2011, Dresden, Germany.
19. Anita Penkova, Yang Tang, Komsan Ratanakijsuntorn, Rex Moats, and S.S. Sadhal, "Three-dimensional modeling and MRI visualization of intravitreal drug transport,", ARVO Annual Meeting, May 4-12, 2012, Fort Lauderdale, FL.
20. Anita Penkova, Satwindar Sadhal, Komsan Ratanakijsuntorn, Rex Moats, Yang Tang , Patrick Hughes, Michael Robinson, and Susan Lee, "Convective transport resistance of large molecules and nanoparticles in the vitreous humor," Paper No.: DFD12-2012-020014, DFD-APS Meeting, November 17-20, 2012.
21. Anita N. Penkova, Komsan Rattanakijsuntorn, Yang Tang, Rex Moats, Michael R. Robinson, Susan S. Lee, Satwindar S. Sadhal, Hindered convective transport of nanoparticles and macromolecules in the vitreous humor, ARVO 2013 Annual Meeting, Seattle, May 5-9, 2013
22. S.S. Lee; J.E. Whitcomb; M. Kazemi; I. Harutyunyan; A. Penkova; R. Moats; S.S. Sadhal; M.R. Robinson, "Understanding Intravitreal Pharmacokinetics with 3D Magnetic Resonance Imaging and Computational Fluid Dynamic Modeling," ARVO-ISIE Imaging Conference, Seattle, May 4, 2013.
23. Anita N. Penkova, Komsan Rattanakijsuntorn, Yang Tang, Rex Moats, Michael R. Robinson, Susan S. Lee, Satwindar S. Sadhal, Bovine vitreous diffusion coefficient measurement and comparison of Prohance with Gd-DTPA, ARVO 2014 Annual Meeting, May 4-8, Orlando, Program Number: 5251 Poster Board Number: C0047 Presentation Time: 3:45 PM–5:30 PM (poster)
24. Anita Penkova, Komsan Rattanakijsuntorn, S.S. Sadhal, Yang Tang, Rex Moats, Michael R. Robinson, Susan S. Lee, "MRI visualization of ProHance® diffusion contours in the vitreous humor following intravitreal injection," Paper IMECE2014-40938, International Mechanical Engineering Congress and Exposition, November 15 –20, 2014, Palais des congrès de Montréal, Canada.
25. Susan S. Lee, Michael R. Robinson, Mohammad R. Kazemi, Anita Penkova, S.S. Sadhal, Mayassa Attar, Julie E. Whitcomb, "The effect of elevated intraocular pressure on convective flow in the vitreous," ARVO Annual Meeting, May 2-7, 2015, Program 234 Poster C0089
26. Mohammad AlHamli, S.S. Sadhal, "Steady streaming around a pulsating bubble located at the velocity node of a standing wave," INVITED PAPER, 169th Meeting of the Acoustical Society of America, May 18-21, 2015, Pittsburgh, PA. Session 1pPA3, *J. Acoust. Soc. Am.*, **137**, No. 4, Pt. 2, April 2015, pages 2222-2223.

27. Anita Penkova, Komsan Rattanakijsuntorn & Satwindar Sadhal, "A technique for the diffusion coefficient measurements through the biological assembly of "iris-hyaloid membrane-vitreous humor"" *Invest. Ophthalmol. Vis. Sci*..2016; **57**(12):760, ARVO Annual Meeting, 2016.
28. Anita Penkova, Komsan Rattanakijsuntorn & Satwindar Sadhal, "Study of ganciclovir permeability through bovine, rabbit, and human Alzheimers ex-vivo ocular tissue, Abstract 1916-1099, SB3C Conference, National Harbor, MD, June 29-July 2, 2016.
29. Anita Penkova & S.S. Sadhal, "Bovine Vitreous and Hyaloid Hydraulic Permeability Measurement," Abstract 4465, Presented at the ARVO Annual Meeting, May 7-11, 2017, *Invest. Ophthalmol. Vis. Sci*.. 2017; 58(8): 4465. CT
30. Anita N. Penkova, Komsan Rattanakijsuntorn, Anahid Khoobyar, Karthik Murali, Mark S. Humayun, Satwindar S. Sadhal, "*Measurement of Oxygen Diffusion Coefficient in the Vitreous Humor*," Extended Abstract No.: 2017-63, presented at the SB3C Conference, Tucson, AZ, June 21-24, 2017. CT
31. Satwindar Sadhal & Anita Penkova, "Measurement of Transport Parameters for Ocular Drug Delivery," Presented at the Professor Stuart W. Churchill Memorial Symposium: *Advances in Transport Phenomena & Bridging Heat and Mass Transfer*, ASME Summer Heat Transfer Conference, Bellevue, WA, July 9-12, 2017. CT
32. Anita N. Penkova, Shuqi Zhang, Mark S. Humayun, Satwindar S. Sadhal, "*Measurement of the Hydraulic Conductivity of the Bovine Vitreous Humor: Theory and Experiments with the Whole Ex-Vivo Eye*," Abstract presented at the 14th US-Japan Symposium on Drug Delivery Systems, Maui, HI, December 14-18, 2017.
33. Anita N. Penkova J. Martinez, M. Humayun, A. Tadle, A. Galesic, A. Calle, M. Thompson, M. Pratt, S. S. Sadhal, "Diffusion Coefficient In Vivo Measurement of Rabbit Vitreous Humor with Fluorescein Labeling." Paper 6103, poster presentation at the ARVO Annual meeting, Vancouver, Canada, April 28 - May 2, 2019.
34. Anita N. Penkova, Shuqi Zhang, Komsan Rattanakijsuntorn, Mark S. Humayun, Juan C. Martinez, Alejandra Gonzalez Calle, Ana Glaesic, Abigail Tadle, Matthew R. Pratt, Mark E. Thompson, Satwindar S. Sadhal, "In vivo measurement of bevacizumab diffusion coefficient in the rabbit vitreous humor using fluorescein labeling," Summer Biomechanics, Bioengineering and Biotransport Conference, June 25 -28, Seven Springs, PA, USA
35. Satwindar Singh Sadhal, "Droplet Evaporation from Heated Surfaces: Effect of Solid Conductivity and Contact Angle," Technical Presentation. HT2019-3825, Peter C. Wayner Special Symposium, ASME Summer Heat Transfer Conference, July 14-17, 2019, Bellevue, Washington.
36. Analytical and Computational Modeling of Sustained-Release Drug Implants in the Vitreous Humor Technical Presentation. Paper IMECE2019-13228, ASME International Mechanical Engineering Congress and Exhibition, Salt Lake City, November 10-17, 2019.
37. Anita Nikolova Penkova; Shuqi Zhang; Mark Humayun; Satwindar Singh Sadhal, "Simulation and modeling of saccadic motion with syneresis of nanoparticle surrogate drug dispersion," Abstract presented at the ARVO Annual Meeting (Virtual), May 2020. Abstract published in *Investigative Ophthalmology & Visual Science (IOVS)* **61**(7) June 2020.
38. Anita Penkova, Anahid Khoobyar, Mark Humayun, Satwindar Sadhal, **"**Modeling Intravitreal Drug Transport in Syneretic Eyes," Abstract presented at the International Mechanical Engineering Conference and Exposition (IMECE, Virtual), November 2020. Paper No.: IMECE2020-25285
39. Anita Nikolova Penkova, Amin Naghdloo, Mark Humayun, Satwindar Singh Sadhal, Sustained-Release Drug Implants in the Vitreous Humor: Analytical and Computational Modeling," Abstract Presented at the 2021 ARVO Virtual Conference, May 2021. Published in IOVS: https://iovs.arvojournals.org/article.aspx?articleid=2775464&resultClick=1

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1. S.S. Sadhal, "*Fourier Analysis, Eigenfunction Expansions, and Partial Differential Equations*," Second Edition, Publisher: Mathematics Education for Engineering (sole proprietor: SS Sadhal), Yorba Linda, California, 280 pages.2018, ISBN 978-0-9913683-1-0
2. Sadhal, S.S., Ayyaswamy, P.S. & Chung, J.N., *Transport Phenomena with Drops and Bubbles*, Springer-Verlag, 520 pages, 1997, ISBN 0-387-94678-0.

Book Chapter

S.S. Sadhal, "Analysis of Acoustic Streaming by Perturbation Methods," in *Microscale Acoustofluidics*, Eds. Andreas Lenshof & Thomas Laurell, Royal Society of Chemistry, London, 2014. ISBN 978-1-84973-671-8

Edited Works

1. S.S. Sadhal, Guest Editor, "*Heat and Mass Transfer 2014*, Proceedings, "Interdisciplinary Transport Phenomena VII," Conference, September 19-23, 2011, Dresden, Germany.
2. S.S. Sadhal, Guest Editor, "*Interdisciplinary Transport Phenomena VI:* proceedings, "Interdisciplinary Transport Phenomena VI," Conference, October 2-9, 2009, Volterra, Italy, *International Journal of Transport Phenomena.*
3. S.S. Sadhal, Editor, "*Interdisciplinary Transport Phenomena V:* proceedings, "Interdisciplinary Transport Phenomena V," Conference, October 12-19, 2007, Bansko, Bulgaria, *Annals of the New York Academy of Sciences*,Vol. 1161, ISBN: 978-1-57331-712-2, 2009
4. S.S. Sadhal, Editor, "*Interdisciplinary Transport Phenomena in the Space Sciences*," proceedings, "Interdisciplinary Transport Phenomena IV," Conference, August 7-12, 2005, Tomar, Portugal. *Annals of the New York Academy of Sciences*, volume 1077, ISBN:1-57331-615-6, 2006
5. S.S. Sadhal, Editor, "*Transport Phenomena in Microgravity*," proceedings, "Microgravity Transport Processes in Fluid, Thermal, Biological and Materials Sciences III," Conference, September 14-19, 2003, Davos, Switzerland, *Annals of the New York Academy of Sciences*, 576 pages, 2004. ISBN: 1-57331-564-8.
6. S.S. Sadhal, Editor, Proceedings, "*Microgravity Transport Processes in Fluid, Thermal, Biological and Materials Sciences II*," Conference, September 30 to October 5, 2001, Banff, Alberta, Canada, *Annals of the New York Academy of Sciences*, 626 pages, 2002. ISBN: 1-57331-423-4.
7. S. Mishra & S.S. Sadhal, Editors, "*Proceedings of the International Symposium on Recent Trends in Heat and Mass Transfer*," January 7-9, 2002, Indian Institute of Technology, Guwahati, India, 356 pages, Tata McGraw-Hill. ISBN: 0-07-047448-6
8. S.K. Saha, S.P. Venkateshan, B.V.S.S.S. Prasad and S.S. Sadhal, "*Heat and Mass Transfer* 2002," Proceedings of the Fifth ISHMT-ASME Heat and Mass Transfer Conference, January 3-5, 2002, Kolkata, India, 1446 pages, Tata McGraw-Hill. ISBN: 0-07-047443-5
9. S.S. Sadhal. Co-Editor on *Proceedings of the ASME Heat Transfer Division 2000*, Volume 1, Ed. J. H. Kim, 3564 pp. ISBN: 0-7918-1908-6, HTD-Vol. 366-1, ASME, 2000
10. S.S. Sadhal, Co-Editor on *Applications of Heat Transfer in Equipment, Systems, and Education*, ASME HTD Vol. 361-3/PID Vol. 3, 1998, ISBN 0-7918-1597-8. [This volume has a section on Heat Transfer in Microgravity, edited by A. Gopinath & S.S. Sadhal.].
11. K.E. Goodson, A. Majumdar, M. Faghri, L.S. Yao, W.S. Chang, A. Gopinath, S.S. Sadhal, & E.H. Trinh, *Proc. 1997 Int'l Mechanical Engineering Congress & Exposition*, American Society of Mechanical Engineers, No. DSC- 62, HTD--332 (1997), ISBN 0-7918-1843-8.
12. S.S. Sadhal, A. Gopinath, P.D. Jones, J. Seyed-Yagoobi, & K.A. Woodbury, *Proceedings of the ASME Heat Transfer Division -- Volume 1*, American Society of Mechanical Engineers, No. HTD--332, ISBN 0-7918-1519-6 (1996).
13. S.S. Sadhal, A. Gopinath, P.H. Oosthuisen & A. Hashemi, *Proceedings of the 30th National Heat Transfer Conference -- Volume 3*, American Society of Mechanical Engineers, No. HTD--305, ISBN 0-7918-1704-0 (1995).
14. S.S. Sadhal & A. Gopinath, *Heat Transfer in Microgravity Systems 1994*, American Society of Mechanical Engineers, No. HTD--290, ISBN 0-7918-1408-4 (1994).
15. S.S. Sadhal & A. Hashemi, *Heat Transfer in Microgravity Systems 1993*, American Society of Mechanical Engineers, No. HTD--235, ISBN 0-7918-1148-4 (1993).

SERVICE

Reviewer for Scientific Journals

AIAA Journal
ASME Journal of Fluids Engineering
ASME *Journal of Heat Transfer*

Journal of the Optical Society of America
International Journal of Heat and Mass Transfer
International Journal of Heat and Fluid Flow
Numerical Heat Transfer
Journal of Fluid Mechanics
Physics of Fluids
Heat and Mass Transfer

NSF Panelist: Presidential Young Investigator Program, 1992
NASA Panelist: Microgravity Fluid Science Applications Proposal Review.

Workshop Participation

JANNAF Workshop on Research Needs in Near Critical Phenomena, Irvine, CA, November 1989.
NASA Workshop on Microgravity Science Applications, NASA Lewis, Cleveland, OH, August 7--9, 1990.
NSF Thermal Sciences Workshop, Chicago, April 18-21, 1991.
International Workshop on Boiling, Condensation and Two-Phase Flow Heat Transfer, January 11--12, 1994, Visakhapatnam, India

Academic Program External Reviewer,
MSME Program, University of Nevada, Las Vegas, November 1991
Graduate Program, Mechanical and Industrial Engineering, University of Toronto, 2008.

Service at USC

CIMES Co-Director (VSoE-Math) 2006-
TA Coordinator, AME Department, 2013-15
AME Curriculum Committee Chair, 2000-2005
AME Publications (poster, brochure and newsletter)
APT (Appointments, Promotions and Tenure) Committee, 1985-87 and 1993-95, 2006-08.
APT Committee Chairman, 1994-95.
Department Chairman, 1997-98
Acting Department Chairman, 1990-92, 1996.
Associate Chairman, 1992-97, 1998-2006
ME Graduate Affairs Committee Chairman 1992-97, 1998-2005
Graduate Recruitment and Enrollment Management Committee, 1991-94.
Curriculum Review Task Force, 1993-94
University Senate, 1984-85.
ITV (Interactive Television Network) Review Committee, 1993-94
Academic Planning and Budget Advisory Committee, 1989-90
Seminar Coordinator (Mechanical Engineering), 1989-90, 2005

Professional Society Service (ASME)

ASME Student Chapter Faculty Advisor, University of Pennsylvania, 1979-1981.
Region III Student Conference Host, University of Pennsylvania, 1979.
Reviewer for
- Journal of Heat Transfer (1978 - date)
- Journal of Applied Mechanics (1978 - date)
- Journal of Fluids Engineering (1985 - date)
- ASME Winter Annual Meeting / IMECE (1979 - date)

Heat Transfer in Energy Systems Committee (K-6)
- Member (1983 - date)
- Secretary (2001-2004)
- Chair (2004-2007)

Poster Sessions Evaluation Committee, ASME Winter Annual Meeting, Atlanta, December 1991.

Technical Sessions Chair/Co-Chair

Direct Contact Heat Exchange Session,
National Heat Transfer Conference, Denver, 1985.
ASME/JSME Thermal Engineering Joint Conference, Honolulu, April 1987.

Sessions on Heat Transfer in Microgravity Systems,
National Heat Transfer Conference, Atlanta , 1993.
IMECE, Chicago, 1994.
National Heat Transfer Conference, Portland, 1995.
IMECE, San Francisco, 1995.
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IMECE, Atlanta, 1997.
IMECE, Anaheim, 1998.
ASME-JSME Thermal Engineering Conference, San Diego, 1999.
IMECE, Orlando, 2000.

Conference Chair/Co-Chair

Conference Chair: "Interdisciplinary Transport Phenomena VII: Fluid, Thermal, Biological, Materials and Space Sciences," Dresden, Germany, September 19-23, 2011.

Conference Chair: "Interdisciplinary Transport Phenomena VI: Fluid, Thermal, Biological, Materials and Space Sciences," Volterra, Tuscany, Italy, October 4-9, 2009.

Conference Chair: "Interdisciplinary Transport Phenomena V: Fluid, Thermal, Biological, and Materials Sciences," Bansko, Bulgaria, October 14-19, 2007.

Conference Chair: "ECI Interdisciplinary Transport Phenomena in Microgravity and Space Sciences IV," Tomar, Portugal, August 7-12, 2005.

Conference Chair: "ECI Microgravity Transport Processes in Fluid, Thermal, Materials, and Biological Sciences III," Davos Switzerland, September 14-19, 2003.

Conference Chair: "UEF Microgravity Transport Processes in Fluid, Thermal, Materials, and Biological Sciences II," Banff, Canada, September 29- October 5, 2001.

Conference Co-Chair: "Fifth ISHMT/ASME Heat and Mass Transfer Conference," Science City, Calcutta, India, January 3-5, 2002.