

## JOSÉ L. LAGE

### Education

- Ph. D. Mechanical Engineering, Duke University, May 1991, *Advisor*: Professor A. Bejan
- M. Sc. Mechanical Engineering, Pont. Catholic Univ. of Rio de Janeiro, Brazil, Oct 1986, *Adv.*: Prof. P. R. Souza Mendes
- B. Sc. Mechanical and Nuclear Engineering, Pontifical Catholic University of Rio de Janeiro, Brazil, Jul 1984

### Professional Registration

*Professional Engineer License # 94207, Texas Board of Professional Engineers.*

### Faculty/Research Positions

- Professor*, Mechanical Engineering Department, Southern Methodist University (SMU), 2001 – present
- Director*, Laboratory for Porous Materials Applications, Mechanical Eng. Dep., Southern Methodist University, 1999 – present
- Visiting Scholar*, Inst. for Process Eng. & Inst. for Energetics, Swiss Federal Inst. of Tech.(ETH-Zentrum), Zürich, 1998 – 1999
- Associate Professor*, tenured, Mechanical Engineering Department, SMU, 1996 – 2001
- Assistant Professor*, Mechanical Engineering Department, SMU, 1991 – 1996
- Post-Doctorate Fellow*, Dep. of Mechanical Eng. & Materials Sci., Duke University, 1991
- Teaching & Research Assistant*, Dep. of Mechanical Eng. & Materials Sci., Duke University, 1988 – 1991
- Assistant Professor*, Dep. of Mechanical Engineering, Military Institute of Engineering, Rio de Janeiro, Brazil, 1986 – 1987
- Research Associate*, Dep. of Mechanical Engineering, Pontifical Catholic University of Rio de Janeiro, Brazil, 1986 – 1987

### Administrative Positions

- President*, SMU Faculty Senate, 2011-present
- President-Elect*, SMU Faculty Senate, 2010-2011
- Director*, FIPSE-CAPES US-Brazil Bi-lateral Consortium in Manuf. and Global Security, 2002-2008
- Associate Chair*, Mechanical Engineering Department, Southern Methodist University, 2001 – 2003
- Undergraduate and Graduate Student Advisor*, Mechanical Engineering Department, SMU, 2001 – 2003
- Director*, SMU-in-Koenigswinter Engineering Summer Program, 2001

### Honors and Awards

- Encit Invited Keynote Speaker*, 12<sup>th</sup> Brazilian Congress of Thermal Sciences and Eng., Minas Gerais, Brazil, Nov 2008
- 2007 Best Mechanical Engineering Research Award*, SMU Research Day, Aug 2007
- 1993-1994, 2003-2004, 2004-2005, 2005-06 Outstanding Undergraduate Faculty Award in Mechanical Engineering*, SMU
- InterPack Invited Panelist*, ASME Electronic and Photonic Packaging Div., San Francisco, CA, Jul 2005
- DLS Invited Keynote Speaker*, 1<sup>st</sup> Int. Conf. on Diffusion in Liquids and Solids, Portugal-American Found., Portugal, Jul 2005
- NATO Advanced Study Institute Invited Speaker*, Current Issues on Heat and Mass Transfer in Porous Media, Neptun-Olimp, Romania, Travel Award, Jul 2004
- 2004 Outstanding Faculty Award*, SMU Panhellenic Association, Apr 2004
- 2004 Scott Kalmus "Eagle" Award*, ASME, North Texas Section, May 2004
- NASA Invited Keynote Speaker*, NASA Glenn Research Center, Workshop on Convection in Porous Media, Apr 2004
- 2000-2001, 2002-03 Honoring Our Professors Excellence (H.O.P.E.) Award*, Dep. Residence Life and Student Housing, SMU
- Honorary Member*, Pi Tau Sigma International Mechanical Engineering Honor Society, Oct 2003
- Honorary Professor*, University Lower Danube of Galați, Romania, May 2002
- 2001 Engineer of the Year Award*, ASME, North Texas Section, Texas Society of Prof. Eng., Feb 2001
- Swiss Federal Institute of Technology Fellowship*, ETH-Zentrum, Zürich, Switzerland, Sep 1998 – Jan 1999
- Leonard Euler Center - ERCOFTAC Fellowship*, ETH-Zentrum, Zürich, Switzerland, Aug 1998
- 1998 SAE Ralph R. Teetor Educational Award*, SAE, Feb 1998
- J. Lindsay Embrey Trustee Professorship in Mechanical Engineering*, SMU, May 1993 – May 1997
- 1995-96 Young Engineer of the Year Award*, ASME, North Texas Section, May 1996
- 1994-95 Golden Mustang Award*, The Golden Mustang Endowment, SMU, May 1995
- 1994-95 ASEE Outstanding Teaching Award*, Gulf Southwest Section, Mar 1995
- 1994 Outstanding Research Award*, Sigma Xi, The Scientific Research Society, SMU Chapter, Apr 1994

### Patent

"Cold Plate Design for Thermal Management of Phased-Array Radar Systems," *U.S. Patent* 5,960,861, Oct 1999

### Editorial Assignments

- Editorial Board Member*, International Journal of Mechanics and Thermodynamics, Apr 2009 – present
- Editorial Board Member*, International Journal of Fluids Engineering, Apr 2009 – present
- Associate Editor*, International Journal of Dynamics of Fluids, Jan 2005 – present
- Associate Editor*, ASME Journal of Heat Transfer, Jul 2005 – Jun 2008, Jun 2011 – present
- Associate Technical Editor*, Thermal Engineering Journal, ABCM, Jan 2002 – present

### Publications - Book Chapters

- Lage, J.L., "The Fundamental Theory of Flow through Permeable Media from Darcy to Turbulence," in *Trans. Phen. in Porous Media – Vol. 1* (Eds. D. B. Ingham and I. Pop), Pergamon, Oxford, 1-30, 1998.
- Lage, J.L. and Narasimhan, A., "Porous Media Enhanced Forced Convection Fundamentals and Applications," in *Handbook of Porous Media* (Ed. K. Vafai), Marcel Dekker, NY, 8, 357-394, 2000.
- Lage, J.L., de Lemos, M.J.S. and Nield, D.A., "Modeling Turbulence in Porous Media," in *Trans. Phen. in Porous Media – Vol. 2* (Eds. D. B. Ingham and I. Pop), Pergamon, Oxford, 198-230, 2002.

4. Lage, J.L., "Experimental Methods," in *Handbook of Heat Transfer* (Eds. A. Bejan and A. D. Kraus), John Wiley, New Jersey, 913-946, 2003.
5. Merrikh, A.A. and Lage, J.L., "From Continuum to Porous-Continuum: The Visual Resolution Impact on Modeling Natural Convection in Heterogeneous Media," in *Transport Phenomena in Porous Media – Vol. 3* (Eds. D. B. Ingham and I. Pop), Elsevier, Oxford, 60-96, 2005.
6. Kulish, V.V., Lage, J.L., Sourin, A.I., "Fundamentals of Alveolar Gas Diffusion: Mathematical Modeling and Visualization," in *Human Respiration: Anatomy and Phys., Math. Modeling, Num. Sim. and App. – Advances in Bioengineering Series, Vol. 3* (Ed. V. Kulish), WIT Press, 64-79, 2006.
7. Lage, J.L., "Solid-Liquid Sweeping Convection: Theory and Experiments," in *Advances in Multiphase Systems* (Ed. A. Oeschern), John Wiley, New Jersey, 2011 (to appear).

#### Journal Papers (last 5 years, selected)

1. Merrikh, A.A., Lage, J.L., Mohamad, A.A., "Natural Convection in Nonhomogeneous Heat-Generating Media: Comparison of Continuum and Porous-Continuum Models," *J. Porous Media*, 8, 1-15, 2005.
2. Merrikh, A.A., Lage, J.L., "Effect of Blood Flow on Gas Transport in a Pulmonary Capillary," *ASME J. Biomechanical Engineering*, 127, 432-439, 2005.
3. Merrikh, A.A., Lage, J.L., "Natural Convection in an Enclosure with Disconnected and Conducting Solid Blocks," *Int. J. Heat Mass Transfer*, 48, 1361-1372, 2005.
4. Lage, J.L., Krueger, P., and Narasimhan, A., "Protocol for Measuring Permeability and Form Coefficient of Porous Media," *Phys. Fluids*, 17, 088101, 2005.
5. Merrikh, A.A., Lage, J.L., "The Role of Red Cell Movement on Alveolar Gas Diffusion," *Materials Science and Engineering Technology*, 36, 497-504, 2005.
6. Narasimhan, A. and Lage, J.L., "Variable Viscosity Forced Convection in Porous Medium Channels," in *Handbook of Porous Media: Second Edition, Revised and Expanded* (Ed. K. Vafai), Marcel Dekker, New York, 195-233, 2005.
7. Kulish, V. V., and Lage, J. L., "Impact of Microscopic Solid Particles on the Alveolar Diffusion," in *Human Respiration: Anatomy and Physiology, Mathematical Modeling, Numerical Simulation and Applications – Advances in Bioengineering Series, Vol. 3* (Ed. V. Kulish), WIT Press, 13-22, 2006.
8. Merrikh, A.A. and Lage, J.L., "Plasma Microcirculation in Alveolar Capillaries: Effect of Parachute Shaped Red Cells on Gas Exchange," *Int. J. Heat Mass Transfer*, 51, 5712-5720, 2008.
9. Hassanipour, F., and Lage, J.L., "Numerical Simulation of Capillary Convection with Encapsulated Phase-Change Particles," *Num. Heat Transfer-A*, 55, 893-905, 2009.
10. Hassanipour, F., and Lage, J.L., "The Effect of Porous Medium on the Flow of a Liquid Vortex," *Int. J. Engineering*, 3, 125-133, 2010.
11. Hassanipour, F., and Lage, J.L., "Preliminary Experimental Study of a Bio-inspired, Phased-change Particle Enhanced Capillary Heat Exchanger," *Int. J. Heat Mass Transfer*, 53, 3300-3307, 2010.
12. Hassanipour, F., and Lage, J.L., "Bio-inspired, Multi-phase Forced Convection Enhancement by ABS Plastic or Encapsulated Paraffin Beads," *ASME J. Heat Transfer*, 132, 074501, 2010.
13. Machado, J.F.B, Negrão, C.O.R, Junqueira, S.L.M., Morales, R.E.M., Lage, J.L., "A Simplified Model with a Hybrid Analytical-Numerical Solution for Predicting the Unsteady Conjugate Heat Transfer Process in Pipelines," *Num. Heat Transfer-B*, accepted for publication, 2011.
14. Junqueira, S. L.M., De Lai, F.C., Franco, A.T., Lage, J.L., Effects of Solid Volume-Fraction, Solid-Fluid Thermal Conductivity Ratio and Number of Blocks on the Natural Convection in a Heterogeneous Rectangular Enclosure," *Heat Transfer Engineering J.*, accepted for publication, 2011.

#### Edited Books/Proceedings

1. Lage, J.L., Editor, "Thermodynamics and the Design Analysis and Improvement of Energy Systems," *Proc. Advanced Energy Systems Division*, AES-vol.37, ASME, New York, pp.75-295, 1997.

#### **Undergraduate Advising**

*Alpha Chi Omega*, Sorority, SMU Chapter Faculty Advisor, 2003-present.

*Pi Tau Sigma*, SMU Tau Sigma Chapter Faculty Advisor, 1994-2005.

*ASME Student Section*, SMU Faculty Advisor, 1994-1997, 2001-2002.

#### **Professional Society Officer**

Member, Industry Advisory Board, ASME - North Texas Section, 2001- present

Member, ASME - North Texas Section, Engineer of the Year Selection Committee, 2001-present

Member, ASME Heat Transfer Division Newsletter Advisory Committee, 2000-2002

Past-Chair, ASME - North Texas Section, 2000-2001

Chair, ASME - North Texas Section, 1999-2000

Secretary, ASME - Heat Transfer Division - K8 Committee, 1997-2003

Web Editor, ASME - Heat Transfer Division - K8 Committee, 1997-2003

Vice-Chair & Program Coordinator, ASME - North Texas Section, 1997-98

Editor, ASME - Heat Transfer Division World-Wide-Web Page, 1996-99

Finance Chairman, ASME - 1997 IMECE, Local Arrangements Committee, 1996-97

Secretary, ASME - North Texas Section, 1996-97  
Treasurer, ASME - North Texas Section, 1995-96  
College Relations Officer, ASME - North Texas Section, 1994-95

**Technical Conference Session Organizer (selected)**

1. Angirasa, D., Lage, J.L., *Fundamentals of Heat Pipe and Thermosyphons*, 8<sup>th</sup> Joint ASME/AIAA Thermophysics and Heat Transfer Conference, Saint Luis, Missouri, 2002.
2. Lage, J.L., et al., *HTD Poster Session*, 2002 ASME - Int. Mechanical Engineering Congress and Exposition, New Orleans, LA, 2002.
3. Lage, J.L. and Kandlikhar, S., *Fund. of Microchannel Heat Transfer*, ASME Summer Heat Transfer Conf., Las Vegas, 2003.
4. Oosthuizen, P. and Lage, J.L., *Fundamentals of 3D Natural Convection*, 2003 ASME - IMECE, Washington, DC, 2003.
5. Lage, J.L., Pence, D. V., Diller, K. and Plawsky, J., *Heat & Mass Transfer in Biological Systems*, 2004 ASME Heat Transfer/Fluids Engineering Summer Conference, Charlotte, NC, 2004.
6. Lage, J.L., de Lemos, Marcelo J., *Fundamentals of Heat Transfer in Porous Media*, 2005 ASME - Int. Mechanical Engineering Congress and Exposition, Orlando, FL, 2005.
7. Oosthuizen, P., Lage, J.L., *Fund. of Heat Transfer in Porous Media*, ASME Nat. Heat Transfer Conf., Vancouver, CA, 2007.

**International Technical Conferences (selected)**

1. Organizing Committee Member, *3rd Int. Conference on Computational Heat and Mass Transfer*, Banff, Canada, 2003
2. Organizing Committee Member, *2<sup>nd</sup> International Conference on Applications of Porous Media*, Evora, Portugal, 2004.
3. Advisory Committee Member, *4<sup>th</sup> Int. Conference on Computational Heat and Mass Transfer*, Paris-Cachan, France, 2005.
4. Scientific Committee Member, *1<sup>st</sup> Int. Conf. on Diffusion in Solids and Liquids (DSL-2005)*, Aveiro, Portugal, 2005.
5. Organizing Committee Member, *3<sup>rd</sup> Int. Conference on Applications of Porous Media*, Marrakesh, Marrocco, 2006.
6. Scientific Committee Member, *2<sup>nd</sup> Int. Conf. on Diffusion in Solids and Liquids (DSL-2006)*, Aveiro, Portugal, 2006.
7. Scientific Committee Member, *18<sup>th</sup> International Symposium on Transport Phenomena*, Daejeon, Korea, 2007.
8. Scientific Committee Member, *3<sup>rd</sup> Int. Conf. on Diffusion in Solids and Liquids (DSL-2007)*, Algarves, Portugal, 2007.
9. Scientific Committee Member, *19<sup>th</sup> International Symposium on Transport Phenomena*, Reykjavik, Iceland, 2008.
10. Scientific Committee Member, *4<sup>th</sup> Int. Conf. on Diffusion in Solids and Liquids (DSL-2008)*, Barcelona, Spain, 2008.
11. Scientific Committee Member, *20<sup>th</sup> International Symposium on Transport Phenomena*, Victoria, Canada, 2009.

**Technical Symposium Organizer**

1. Lage, J.L., Chairman, *Symposium on Thermodynamics, and the Design, Analysis, and Improvement of Energy Systems*, 1997 ASME - Int. Mechanical Engineering Congress and Exposition, Dallas, TX.

**Technical Conference Liaison**

1. Lage, J.L., ASME Heat Transfer Division, *K8 Committee Representative*, 8th Joint ASME/AIAA Thermophysics and Heat Transfer Conference, St Louis, Missouri, 2002.
2. Lage, J.L., ASME Heat Transfer Division, *K8 Committee Representative*, 2002 ASME - Int. Mechanical Engineering Congress and Exposition, New Orleans, LA, 2002.

**Reviewer (Grants)**

National Science Foundation (USA)	US Air Force Office of Scientific Research
Petroleum Research Fund (USA)	Hong Kong Research Grants Council
US Civilian Res. and Development Foundation	FIPSE, Department of Education (USA)
Higher Education Financing Division (Singapore)	Natural Sciences and Eng. Res. Council (Canada)
Leverhulme Res. Fellowships and Grants Trust (England)	

**Reviewer (Technical Articles, selected)**

Int. J. Heat Mass Transfer	ASME J. Heat Transfer	J. Fluid Mechanics
The Royal Society (United Kingdom)	Physics of Fluids	Czechoslovak Journal of Physics
IEEE Trans. on Components and Packaging Technologies		ACTA Mechanica
ASME J. Fluids Engng	Num. Heat Transfer	ASME J. Electronic Packg.
Int. J. Heat Fluid Flow	Journal of Porous Media	Transp. in Porous Media
AIAA J. Thermo. Heat Transfer	Int. J. Fluid Mechanics Research	Int. J. Energy Sources
Int. J. Thermal Sciences	Microscale Thermo. Engng	Experiments in Fluids
ASHRAE	Int. J. Multiphase Flow	Int. J. Numerical Methods
ASME J. Energy Res. Tech	Int. J. Engineering Science	Thermal Engineering Journal

**Reviewer (Books/Dissertations)**

Cambridge University Press	Elsevier	Taylor & Francis
Marcel Dekker	Springer Verlag	RT Edwards, Inc.
CRC Press	Victoria University - Australia	University of Durban - S. Africa
Indian Institute of Tech. – Kanpur	Nanyang Technological University	Indian Institute of Technology – Madras

**Reviewer (Tenure/Promotion)**

Duke University	University of Oklahoma	Stevens Institute of Technology
Indian Inst. of Technology (Madras)	SMU (Dedman College)	The Ohio State University
Nanyang Technological University	University of Durban-Westville (S. Africa)	