RESUME

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GENERAL INFORMATION

Education

Ph.D, Department of Mechanical Engineering
University of Minnesota, Minneapolis, MN, 1984

M.S, Department of Mechanical Engineering
Washington State University, Pullman, WA, 1981

B. Tech (with Distinction), Department of Mechanical Engineering
Indian Institute of Technology, Kanpur, India, 1979

Employment

University of California, Los Angeles
October 2016 – present
Ronald and Valerie Sugar Dean
Henry Samueli School of Engineering and Applied Science

January 2016 – present
Dean, Henry Samueli School of Engineering and Applied Science
Distinguished Professor, Department of Mechanical and Aerospace Engineering

The University of Texas at Austin
January 2012 – December 2015
Ernest Cockrell Jr. Memorial Chair and Professor
Chair, Department of Mechanical Engineering

Purdue University, West Lafayette, IN 47907-2088
June 2008 – December 2011
Robert V. Adams Professor
School of Mechanical Engineering

April 2008-2014
Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

August 2001 – December 2011
Professor
School of Mechanical Engineering

Carnegie Mellon University, Pittsburgh, PA 15213
September 1998 – August 2001
Associate Professor
Department of Mechanical Engineering

September 1999- August 2001
Director
Thermal Management, Electronics Cooling, and Packaging Laboratory
Institute for Complex Engineered Systems

Fluent Inc., Lebanon, NH 03766
August 1988 – 1998
Served in various key positions including Manager, New Business Development Group and Manager, R&D

Arizona State University, Tempe, AZ 85287
August 1984 - August 1988
Assistant Professor, Department of Mechanical and Aerospace Engineering

Awards

Member, US National Academy of Engineering, 2020
Foreign Fellow, Indian National Academy of Engineering, 2020
Monte and Usha Ahuja Distinguished Lecture, Ohio State University, 2019
Inspiration Lecture, Virginia Tech College of Engineering, 2019
Plenary M.V. Krishnamurthy Endowed Lecture, International Heat and Mass Transfer Conference, 2017
ASME Heat Transfer Memorial Award, 2016
Tedori-Callinan Distinguished Lecture, University of Pennsylvania, 2016
Plenary Lecture, ThermaCOMP 2016, Atlanta, Georgia, 2016
Hawkins Memorial Lecture, Purdue University, 2013
ASME EPPD Clock Award, 2012
Fellow, ASME, 2012
Distinguished Alumnus Award, IIT Kanpur, India, 2012
ASME EPPD Woman Engineer of the Year Award, 2009
InterPACK Best Paper Award, Emerging Technologies Track, 2009
InterPACK Best Poster Award, 2009
Purdue Team Excellence Award, 2009.
ASME Heat Transfer Division Best Paper Award, July, 2008.
ASABE Best Paper Award, 2007.
Purdue Acorn Award for high research productivity 2006, 2007, 2008,2009,2010,2011
IBM Faculty Partnership Award 2003, 2004,2005
Best Paper Award, Journal of Electronics Packaging, 2004.
Outstanding Teaching Award, University of Minnesota, 1984
University of Minnesota Graduate School Fellowship, 1981
National Science Talent Scholarship, Government of India, 1974-1979

Research Interests	Computational fluid dynamics and heat transfer, numerical methods Efficient computational techniques for sub-continuum thermal transport Modeling and petascale simulation of emerging microsystems Modeling and simulation of multiphase flows, phase change with applications to electronics cooling Applied CFD in electronics cooling, glass, materials and chemicals processing
Editorships	Editorial Board, *International Journal of Thermal Sciences*, Elsevier. Editorial Board, *Numerical Heat Transfer* Journal, Taylor and Francis. Guest Editor, Special Issue on Computational Fluid Dynamics in Honor of Prof. S.V. Patankar, ASME Journal of Heat Transfer, 2006. Associate Editor, ASME Journal of Heat Transfer, 2007-2010. Editor (with W.M. Minkowycz and E.M. Sparrow), *Handbook of Numerical Heat Transfer*, 2nd Edition, Wiley, 2006.

Executive Experience

Ronald and Valerie Sugar Dean, Henry Samueli School of Engineering and Applied Science, UCLA, January 2016 -- Present

Administration

- Leading a highly-ranked engineering school ranked #9 among US publics by US News and World Report, #2 US public/#11 world by Times Higher Ed and #8 in the world by the QS World Rankings. UCLA is ranked #1 US public by US News and World Report, #2 US public/#9 world by Times Higher Education/Wall Street Journal and #13 in the world by the Shanghai Research Council's Academic Ranking of World Universities.
- Leading UCLA Samueli through ambitious expansion phase starting in 2016. The school is currently home to approximately 200 tenure/tenure-track faculty members, 4000 undergraduates, 2500 graduate students, 365 post-doctoral scholars, adjuncts, lecturers and research staff, and 200 administrative staff distributed across 7 departments. The school has grown student enrollment by 30% since 2016 and tenure/tenure track faculty are in the process of expanding by 30%. Hired over 60 new faculty members over the last 5 years.
- Managing an extraordinary flood of student interest in UCLA Samueli. We received about 35,000 engineering applications for 775 freshman slots for Fall 2022, and our admit rate, at 5.5% this year, is unprecedented among US publics.
- Led school through strategic planning exercise in 2016 to identify main thrusts for strategic investment.

Fund-Raising, External Affairs and Communications

- Raised over $320M since 2016, doubling yearly fund-raising.
- School exceeded Centennial Campaign goal of $250M by raising more than $362M overall.
- Significant gifts include:
    - $100M gift from Henry and Susan Samueli
    - Capital gifts of $42.8M
    - Discretionary funds of $113.8M
    - $34M for scholarships and program support.
    - $10.25 M gift to fund Institute for Technology, Law and Policy jointly with UCLA Law School
    - $5M to endow Women in Engineering program WE@UCLA.
    - $5M gift to name the Dean position.
- Grew number of endowed chairs by 50% since 2016.
- Expanded fund-raising and communications groups. Revamped social media, newsletters and other collateral and built up departmental communications efforts.
- Constituted a Dean's Executive Board (DEB) and a Dean's Corporate Advisory Board (DCAB) to help guide the School. The DEB consists of high-capacity philanthropists and captains of industry who guide the school's strategic investments and support the school through significant 7-figure philanthropy. The DCAB consists of high-level corporate leaders. Significantly expanded both personal and corporate philanthropy.

Research

- On track to expand faculty FTE by 30% over the next five years. Focus strongly on six chosen strategic areas: Engineering in medicine and biology; sustainable and resilient urban systems; AI, machine learning and data science; cryptography, cybersecurity and the future internet; advanced materials and manufacturing; and robotics and cyberphysical systems.
- Research awards grew 32% between 2016 and 2020.
- Established, supported and raised philanthropic funding for major institutes and centers in the school, including the Garrick Institute for the Risk Sciences, the Institute for Carbon Management, the NSF Engineering Research Center (ERC) TANMS on nanoscale multi-ferroics and the Center for Quantum Science and Engineering.
- Led major expansion and modernizing of research infrastructure.

Space and Physical Resources

- Managed completion of Engineering VI, resulting in 150,000 sq. ft. of added space; arranged financing.
- Managing renovation of Boelter Hall and significant expansion of wet lab and office space in Engineering VI. Arranged financing for these efforts.
- Completed new makerspace for undergraduate education. Opened in September 2018.
- Developing new clean room facility with state-of-the art equipment. Arranged for funding of $5M of new equipment.

Undergraduate and Graduate Education

- Renamed Electrical Engineering department as Electrical and Computer Engineering department. Established Computer Engineering undergraduate program.
- Established a program to improve the School's community college transfer experience and to provide better articulation with California community colleges to improve graduation rates.
- Established program to revamp undergraduate research and industry internships. At present 80% of our undergraduates have either a research or an industry internship or both.
- Established the Ronald and Valerie Sugar Distinguished Lecture Series to bring thought leaders to campus and to drive interest in entrepreneurship.
- Started new minor in Data Science and Engineering in the ECE department
- Established *Faculty Teaching Faculty to Teach* (FT^2) program to introduce and deploy cutting-edge pedagogical methods in school.

On-line and Self-Supporting Degree Programs

- Leading a significant expansion of our Masters Online (MS On-line) program, which has been ranked either #1 or #2 by US News and World Report over the last few years. The program has grown from 298 students in 2015 to 507 students in Fall 2021. Our goal is to double enrollment again in the next five years.
- Led conversion of MS On-line program into hybrid MS Online program allowing students to spend up to two quarters on campus. This will expand range of courses offered, and help program expansion into countries where wholly online degrees are not currently recognized.
- Established a new on-campus self-supporting Master of Engineering program with specializations in AI, Data Science, IOT, Translational Medicine and other

multidisciplinary specialties. Focus is on marrying technical depth with management expertise. We seek to enroll 100 students in Fall 2022 and enrollment will grow to 200 students a year in the next 5 years.

Cross-Campus Initiatives

- Established a new Department of Computational Medicine jointly with the UCLA David Geffen School of Medicine and in collaboration with UCLA Health, which serves over 2 million patients in LA County. Department will have 15 FTEs and focus on the intersection of computer science, medicine and data. Department Chair appointed and faculty hiring has been underway for the last two years.
- Established Center for Quantum Science and Engineering in collaboration with School of Physical Sciences. Interim Director appointed and faculty searches are underway.
- Established Institute for Technology, Law and Policy jointly with UCLA Law School and obtained $10.25M gift to support it. The institute seeks "to conduct research, convene events and engage the wider academic community and the public about the benefits and risks of technologies including artificial intelligence and machine learning, robotics, cybersecurity and digital media and communications." Faculty hiring underway.
- Under the Rising to the Challenge initiative, hired a faculty member jointly between Civil and Environmental Engineering, the Luskin School of Public Policy and the Bunche Center for African American Studies in the area of transportation equity to study how the design of transportation infrastructure impacts underserved communities.
- Supported the Internet Research Initiative (IRI) led by Prof. Len Kleinrock by raising philanthropic support and serving as mentor. IRI supports undergraduate research projects at the intersection of technology and society across campus. My advisees have been students in Media Arts, Theater Film and Television, Mathematics and others.

Equity, Diversity and Inclusion

- Established a new Associate Dean for Equity, Diversity and Inclusion and Faculty Affairs to drive our diversity efforts and oversee faculty support programs.
- Started WE@UCLA in 2017, a new Women-in-Engineering program focused on significantly increasing the percentage of women students in our school. Hired director and staff.
- Increased percentage of undergraduate women from 23% in 2015 to nearly 30% in 2020. We welcomed a freshman class of 36% women in Fall 2021.
- Raised philanthropic funding to support a new Mathematics Advancement Program, an ambitious 5-year pilot program to provide year-long weekend math and engineering enrichment to students in grades 9-12 from LA Unified School District. Most of these students are from under-represented and socio-economically challenged communities. Our intent is to enrich the pipeline of students applying to UCLA Samueli.
- Started a major program, the Mentor Professor Program, to improve the diversity of our faculty. We seek to hire faculty who are not only excellent researchers and teachers but also passionate about supporting and mentoring our underrepresented minority students. Hired the first three faculty members under this initiative; embarking on the second year of the program with an intent to hire 7 faculty members.
- Initiated effort to expand research in the broad area of engineering and equity by hiring two faculty FTE in the area of transportation equity and environmental equity, the former jointly

with the Luskin School of Public Policy and the Bunche Center for African American Studies. Sponsored panels and speaker series to spur discussions and research about engineering and equity.
- Launched *Awareness to Action* workshop to improve climate for women and under-represented minority students and integrated it into the undergraduate curriculum and in TA training.

International Collaborations

- Expanded and nurtured an extensive network of educational and research collaborations across the world, particularly in East and Southeast Asia. The school collaborates with a number of universities in Taiwan and China, especially through our MS Online and hybrid MS Online programs.
- Maintained strong connections to universities and research entities in Israel, Taiwan, China and India through service on advisory and review committees, major prize juries, and governmental conferences and panels.
- Raised significant philanthropic funding from international alumni for scholarships and fellowships, endowed chairs and named spaces in our newest building, Engineering VI.

National, Industrial and Community Relations

- Served on ASEE Engineering Deans' Council (EDC) Public Policy Committee. EDC is a national organization of more than 350 engineering deans and its public policy committee organizes outreach and communication with the US Congress and lobbying for engineering education and research. Served as Program Chair of the 2022 Engineering Deans Institute.
- Served as chair and on review committees of Lawrence Livermore National Laboratories, Lawrence Berkeley National Laboratories, National Energy Technologies Laboratories and other national level bodies.
- Maintain and nurture a network of relationships with industries, including defense and aerospace giants in Southern California, IT and software industry in Northern California and across all engineering sectors important to the school's strategic directions. Senior leaders from these industries serve on the Dean's Corporate Advisory Board and provide strategic guidance, employment, internships and philanthropic support for the school's efforts.
- Maintain and nurture a network of relationships with California's community colleges through the Engineering Liaison Council to improve articulation with community colleges and support of students transferring to UCLA Samueli. Transfers from community college constitute 15% of UCLA Samueli enrollment and are disproportionately first-generation-in-college and low socioeconomic status.
- Maintain and nurture a network of relationships with Los Angeles high schools in the LA Unified School District, an entity with over 600,000 students, and with California high schools more generally. Our Center for Excellence in Engineering and Diversity runs a variety of high school programs for mathematics and science enrichment to develop diverse freshman pipelines into UCLA Samueli.

Chair, Department of Mechanical Engineering (ME), The University of Texas at Austin, January 2012 --December 2015

Administration

- Led a department of approximately 68 faculty members, 1200 undergraduates, 400 graduate students and 30 staff. Managed promotion and tenure, faculty and staff hiring and strategic planning**.** Managed budgets, staffing, space, safety, information technology, and other services.
- Managed three graduate programs, in Mechanical Engineering, Operations Research and Industrial Engineering (ORIE), and Materials Science and Engineering (MSE).
- Department was ranked #13 overall in US News and World Report rankings for graduate and #10 overall for undergraduate programs.

Strategic Research/Hiring Initiatives

- Hired a total of 13 new faculty members during 2012-2015. Of the 13 faculty members hired during 2012-2015, 5 were women.
- Drove expansion of department from 62 to 68 faculty during 2012-2015.
- Strongly re-oriented departmental research directions to focus on advanced manufacturing, defense/medical robotics, biomechanics/bio-medicine, energy materials, data analytics and the gas and oil sector.

Fund-Raising and Communications

- Led departmental efforts in stewardship of UT ME's 12,000 living alumni, corporate sponsors and foundations; fund-raising for endowments and cash gifts. Coordinated with Cockrell School fund-raising office to enhance college-level initiatives.
- Inducted distinguished alumni annually into ME's Academy of Distinguished Alumni and organized annual induction event.
- Obtained gifts to support 35-in-5 Women in ME initiative, including topping scholarships to support approximately 20-25% of all incoming female freshmen.
- Obtained recurring corporate support of Chevron Frontiers of Engineering Seminar Series.
- Expanded ME Fall Tailgate event to about 400 people (from previous 50) and secured recurring Phillips 66 funding for event.
- Started quarterly newsletter to disseminate departmental highlights. Expanded outreach events across Texas.

Undergraduate and Graduate Education

- Led reorganization of undergraduate curriculum to improve 4- and 6-year graduation rates. Reorganized flow chart, removed unnecessary prerequisites, significantly opened up choice of electives to promote breadth in curriculum, and modernized computational components.
- Developed Longhorn Maker Studio to promote hands-on do-it-yourself innovation and entrepreneurship. The program was later adopted by the Cockrell School of Engineering, moved to the new EERC building and expanded significantly.
- Developed Freshman Introduction to Research in Engineering (FIRE) to attract best students to ME undergraduate program. Significant fraction (~50%) was female.

On-line and Executive Education

- Led creation of fully asynchronous on-line executive MS program in Mechanical Engineering, first ever at UT; program debuted in Spring 2016 after I left UT Austin.

35-in-5 Women in ME Initiative

- Aim was to increase the percentage of female freshmen students from 19% in 2013 to 35% in 2018. After two years of operation, achieved 25% women in our freshmen cohort in Fall 2015.
- Hired endowment-funded Program Coordinator.
- Held recruiting events in Austin, Dallas and Houston hosted and funded by industry and alumni.
- Developed high school ambassadors program in conjunction with UT's Women in Engineering Program.

Director, NNSA PRISM: Center for Prediction of Reliability, Integrity and Survivability of Microsystems, 2008—2014

- Directed PRISM, a $21M center funded by DOE's National Nuclear Security Administration (NNSA), during 2008-2014. Focus on uncertainty quantification and predictive simulation of microsystem reliability; among the largest centers ever funded at Purdue.
- Built interdisciplinary PRISM team and hired staff; 50% of leadership team was female. Developed and supported young faculty who have now gone on to leadership in their areas.
- Established PRISM's external advisory board, including luminaries from industry, national labs and academia, and ran yearly advisory meetings.
- Established a summer internship program for all NNSA-funded PRISM students at the national labs. Every student spent at least three months at the labs and many are employed there today.
- Developed MEMOSA software suite for microsystem simulation and uncertainty quantification which is now being used by academic researchers and industry, including Intel and Qualcomm.

Fluent Inc., 1988 – 1998

- Fluent Inc., now a part of Ansys Inc., is a well-known developer and vendor of computational fluid dynamics (CFD) software.
- Hired as 7th employee of fledgling company. Revenues were <$2M when Fluent Inc. was formed, with about 20 employees.
- As Manager, R&D, developed funding pipelines to develop CFD software products without need for venture capital. Led extensive consulting projects in nearly every major industry sector.
- Led development of CFD algorithms and software for unstructured solution-adaptive meshes; these still form the core of the FLUENT software today. FLUENT was extraordinarily successful and cemented lead in CFD industry for decades to come. Today it is the most widely used CFD software in the world.
- Led newly-formed New Business Development group to vet acquisition opportunities.

- Fluent Inc. was acquired by Ansys Inc. for $660M in 2006, and employed about 800 people world-wide at time of the acquisition.

PRISM: NNSA CENTER FOR PREDICTION OF RELIABILITY, INTEGRITY AND SURVIVABILITY OF MICROSYSTEMS

Prof. Murthy was director of the PRISM center, a $21.2M center funded during 2008-2014 by the Department of Energy's National Nuclear Security Administration under their *Advanced Simulation and Computing* program.

PRISM aimed to significantly accelerate the integration of MEMS technologies into civilian and defense applications through the use of uncertainty quantification, predictive validated science and petascale computing. PRISM was centered at Purdue University where Prof. Murthy was previously employed, with the University of Illinois, Urbana-Champaign, University of New Mexico, and Vanderbilt University as partners. It consisted of about 20 faculty and 7 staff, and supported over 50 graduate students and post-docs during its tenure. PRISM faculty were drawn from aerospace, mechanical, electrical and materials engineering, mathematics and computer science. The Center sought to understand, control, and improve the long-term reliability and survivability of MEMS by using multiscale multiphysics simulation, from atoms to micro-devices, to address fundamental failure mechanisms. The central focus was on a single class of contacting radio-frequency (RF) metal-dielectric capacitive MEMS switches, though the advances made in PRISM will impact the development of a wide range of civilian and military MEMS as well.

PRISM developed a single coherent simulation system called MEMOSA which leveraged internal and DOE codes, and integrated four Center thrusts addressing (i) *contact physics,* including dielectric charging, current channeling, contact-area damage, and stiction, (ii) the *electro-thermo-mechanical membrane response*, including macro-scale materials modeling based on microstructural evolution of defects, dislocations and vacancies, and thermal modeling coupling sub-micron and continuum descriptions, (iii) *multiscale modeling of aerodynamic damping,* transitioning dynamically from continuum to rarefied descriptions as the metal-dielectric contact closes, and (iv) uncertainty quantification in this complex multiscale multiphysics environment.. These thrusts were supported by three cross-cutting technologies: *Computational Science and Engineering (CSE)* to provide a strong backbone of algorithmic and petascale computing expertise; *Software Engineering*, to design, develop, maintain and support high-quality software, and (iii) *Verification and Validation (V&V)*, a substantial Center effort to address the critical V&V issues specific to multiscale multiphysics simulations in microsystems.

The multiscale resolution of failure mechanisms requires billion-atom simulations over 1-10 million time steps at the atomic scale, and tens of millions of degrees of freedom over 1-10 million time steps at the macroscale; the inclusion of uncertainty quantification increases computational effort by an order of magnitude, calling for petascale computing. A strongly-leveraged experimental program was conducted at Purdue's state-of-the-art Birck Nanotechnology Center to augment published data with validation-quality measurements, particularly on microstructural characterization, and to develop a first-of-its-kind validation database for uncertainty quantification in microsystems. Another contribution of PRISM was the development of cyber resources such as simulation software, experimental data, lectures and seminars to the MEMS, NEMS, micro-and nanotechnology communities; these are now offered through nanoHUB (http://www.nanohub.org). PRISM also developed the MEMOSA software suite which is now being deployed in industry.

INDUSTRIAL EXPERIENCE

Prof. Murthy spent approximately 10 years (1988-1998) at Fluent Inc., a leading developer and vendor of computational fluid dynamics (CFD) software. She served in a number of different capacities there, including Manager R&D, and manager of their New Business Development group. In 1988, when Prof. Murthy started at Fluent, the commercial computational fluid dynamics (CFD) market was virtually non-existent, and CFD was thought to be the purview of a few experts, either in academia or in industrial R&D laboratories. Today, CFD is considered an essential ingredient of the industrial design cycle. The transition to widespread use required not only the conceptualization of a user-friendly software product and the development of sustainable business models, but also the invention of robust CFD methodologies that would survive use over enormous ranges of physics and by users of widely-varying abilities. Fluent Inc. pioneered this transition, and Prof. Murthy is proud to have played a key role in it.

Prof. Murthy joined Fluent when it was a division of Creare, Inc. in Hanover, NH, a small consulting business which has been very successful in providing engineering, consulting and development services. In the mid-80's, Creare had developed a small computational fluid dynamics group, and Prof. Murthy was the 7th employee to be hired into this group. In 1990, this group, then about 20-strong, with revenues of $2M, broke away from Creare to form what eventually became Fluent Inc. in 1991. Prof. Murthy's first role in the nascent company was to head their R&D group, with the charter to raise government and industry funding to support the development of Fluent software. This she did successfully, garnering a variety of large projects in critical areas such as the development of unstructured-mesh methods for combustion, turbulence, turbomachinery, fluid-structure interaction and the like. These projects developed Fluent's technology base, and helped ensure that Fluent Inc. could grow without the need for venture capital.

As Fluent Inc. grew, the sale of CFD software began to generate sufficient revenues to fund significant internal CFD research. Prof. Murthy then turned her attention to the development of robust unstructured solution-adaptive CFD solvers. Heretofore, Fluent's CFD products (and indeed nearly all other CFD products) were based on structured-mesh methods which severely limited their ability to address industrial applications. Prof. Murthy led the development of new robust unstructured pressure-based methodologies suitable for Fluent's customers. This effort culminated in the release in 1994 of Fluent/UNS 3.2 to the automotive industry, with subsequent releases addressing an ever-widening set of applications. This software product expanded the range of industrial problems that could be addressed by Fluent, a fact that is reflected in the sharp increase in its *rate* of revenue growth after 1994. This growth gave Fluent a decisive and enduring lead in the market, and allowed it to consolidate its leadership of the CFD business thereafter. In addition, Prof. Murthy also led a newly-formed group within Fluent Inc., the New Business Development Group, to perform evaluations of emerging software and computational technologies, and to identify new business and acquisition opportunities for Fluent.

The CFD technology created by Prof. Murthy still forms the basis of Fluent Inc.'s products today, and its success in the marketplace is attested to by the fact that in 2006, Fluent employed about 800 people worldwide and was acquired by Ansys Inc. for over $660M. Prof. Murthy is thus well-versed not only in the scientific and technological aspects of CFD, but also in the entrepreneurial aspects of business development, and the management of technology and software development groups.

PUBLICATIONS

Books and Edited Volumes

.

Minkowycz, W.J., Sparrow, E.M., and Murthy, J.Y., Handbook of Numerical Heat Transfer, 2nd Edition, Wiley, 2006.

Mathur, S. and Murthy, J.Y.; *The Finite Volume Method*; (in preparation). This is a textbook intended for use in senior/first-year graduate CFD classes. The main body of the text has been developed. Example problems and homework exercises will be added based on material already developed for ME 608, *Numerical Methods for Heat, Mass and Momentum Transfer*. The expected page length is about 250 pages. Preliminary discussions were initiated with Taylor and Francis, and a preliminary abstract for the book was positively reviewed.

Kececioglu, I. and Murthy, J.Y., Editors; *Adaptive Computational Methods in Environmental Transport Processes*; HTD-Vol 208, ASME, 1992.

Georgiadis, J. and Murthy, J.Y., Editors; *Parallel and Vector Computations in Heat Transfer*; HTD-Vol. 133, ASME, 1990.

Archival Refereed Book Chapters

10. Marepalli, P., Mathur, S.R. and Murthy, J.Y.; *An Unintrusive Approach to Accurate Thermal Property Computation and Sensitivity Analysis for Carbon-Based Nanomaterials*; Thermal Behavior and Application of Carbon-based Nanomaterials: Theory, Methods and Applications, Elsevier, Eds. D. Papavassiliou, H. Duong and F. Gong, 2020.

9. Bodla, K. K., Murthy, J. Y., Garimella, S. V.; *Optimization Under Uncertainty for Electronics Cooling Design*; Festschrift Book in Honor of Dr. Avram Bar-Cohen (invited), (M. Iyengar, K.J. L. Geisler and B. Sammakia, Editors), World Scientific, 2014.

8. Kumar, S., Alam, M.A., and Murthy, J.Y; *Simulation of Thermal and Electrical Transport in Nanotube and Nanowire Composites;* New Frontiers of Nanocomposite Materials – Novel Principles and Techniques; (A. Oeschner, Editor), Springer, 2012.

7. Krishnan, S., Murthy, J.Y., and Garimella, S.V.; *Metal Foams as Passive Thermal Control Systems*; in Emerging Topics in Heat and Mass Transfer in Porous Media, (P. Vadasz, Editor) Springer, 2007.

6. Krishnan, S., Garimella, S., and Murthy, J. Y.; *Thermal Characterization of Open-Celled Metal Foams by Direct Simulation*; in Thermal Properties of Cellular and Porous Materials (A. Oechsner, Editor), Wiley, 2007.

5. Murthy, J.Y., Minkowycz, W.J., Sparrow, E.M. and Mathur, S.R.; *Survey of Numerical Methods*; Handbook of Numerical Heat Transfer, pp. 3-52, Editors: W.J. Minkowycz, E.M. Sparrow and J.Y. Murthy, Editors, Wiley, 2006.

4. Mathur, S.R., Minkowycz, W.J., Sparrow, E.M. and Murthy, J.Y.; *Overview of Numerical Methods and Recommendations*; Handbook of Numerical Heat Transfer, pp. 921-945, Editors: W.J. Minkowycz, E.M. Sparrow and J.Y. Murthy, Wiley, 2006.

3. Murthy, J.Y. and Mathur, S.R.; *Computational Techniques for Sub-Micron Thermal Conduction;* Thermal Challenges in Next Generation Electronics Systems, Y. K. Joshi and S.Garimella, Editors, pp. 45-60, Millpress, Rotterdam, 2002.

2. Mathur, S.R., and Murthy, J.Y.; *Unstructured Finite Volume Methods for Multi-Mode Heat Transfer*; Advances in Numerical Heat Transfer, Volume 2, W.J. Minkowycz and E.M. Sparrow, Editors, Taylor and Francis, pp. 37-67, 2001.

1. Murthy, J.Y., and Mathur, S.R.; *Unstructured Mesh Methods for Combustion Problems*; CFD in Industrial Combustion, C.E. Baukal and X. Li, Editors, CRC Press, pp. 61-94, 2001.

Archival Journal Papers

145. Yuksel, A. Yu, E.T., Cullinan, M., and Murthy, J.Y.; *Near-field Plasmonics of Gold Nano-particles in Dielectric Media*; J. Quantitative Spectroscopy and Radiative Transfer, Vol. 254, 107207, October 2020.

144. Mohaghegh, F., M. A. Alam and Murthy, J.Y.; *Rapid Phase-resolved Prediction of Non-linear Dispersive Waves Using Machine Learning*; Applied Oceanic Research, Vol. 117, 102920, 2021.

143. Yuksel, A. Yu, E.T., Cullinan, M., and Murthy, J.Y.; *Electromagnetic Thermal Energy Transfer in Nanoparticle Assemblies below the Diffraction Limit*; Journal of Thermal Science and Engineering Applications, July 2020. DOI: 10.1115/1.4047631.

142. Yuksel, A. Yu, E.T., Cullinan, M., and Murthy, J.Y.; *Investigation of Heat Transfer Modes in Plasmonic Nanoparticles*; International Journal of Heat and Mass Transfer, Vol.156, August 2020, 119869.

141. Zhou, Y., Tranchida, J., Ge, Y., Murthy, J.Y., and Fisher, T.S.; *Atomistic Simulations of Phonon and Magnon Thermal Transport across the Ferro-Paramagnetic Transition*; Physical Review B, 101, 224303, June 2020.

140. Trembacki, B. L., Vadakkepatt, A., Roberts, S. and Murthy, J.Y.; *Volume-Averaged Electro-chemical Transport Modeling of 3D Interpenetrating Battery Electrode Architectures*; Journal of the Electrochemical Society, Vol. 167, No. 1, 013507, 2020.

139. Marepalli, P., Mathur, S.R. and Murthy, J.Y.; *Automatic Differentiation Approach for Property Computations in Nanoscale Thermal Transport*; Computer Physics Communications, 107138, January 2020. DOI: https://doi.org/10.1016/j.cpc.2020.107138.

138. Marepalli, P., Singh, D. and Murthy, J.Y.; *Spectrally-Resolved Thermal Conductivity of Graphene Nano-Ribbons*; Journal of Applied Physics, Vol. 125, No. 23, 2019. DOI:10.1063/1.5085887.

137. Moser, D., Cullinan, M. and Murthy, J.Y.; *Multiscale Modeling of Residual Stress in Selective Lase Melting with Uncertainty Quantification*; Additive Manufacturing, Vol. 29, 100770, 2019.

136. Yuksel, A., Yu, E., Cullinan, M., and Murthy, J.Y; *Thermal Transport in Nanoparticle Packings Under Laser Irradiation*; Journal of Heat Transfer, Vol. 142, No. 3, 032501, 2020. DOI: https://doi.org/10.1115/1.4045731

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70. Kumar, S., Murthy, J.Y. and Alam, M.A.; *Simulation of Thermal Transport in Nanowire Composites for Macroelectronics Applications*; Proceedings of Integrated Nanosystems Conference, NANO2004-46059, Pasadena, CA, September 22-24, 2004.

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67. Narumanchi, S.V.J., Murthy, J.Y., and Amon, C.H.; *Simulation of Heat Conduction in Sub-Micron Silicon-On-Insulator Transistors Accounting for Phonon Dispersion and Polarization*; Paper No. IMECE2003-42447, ASME IMECE, Washington DC, November, 2003.

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Simulation of Nano-Scale Multi-Fingered PD/SOI MOSFETs using Boltzmann Transport Equation; ASME National Heat Transfer Conference, HT-FED2004-56375, Charlotte, NC, July 2004.

65. Krishnan, S., Murthy, J.Y. and Garimella, S.; *A Two-Temperature Model for Solid/Liquid Phase Change in Metal Foams*; ASME National Heat Transfer Conference, HT-FED2004-56335, Charlotte, NC, July 2004.

64. Cao, Y. and Murthy, J.Y; *Numerical Simulation of Granular Flow Using Hypoplasticity Model*; presented at the ASME National Heat Transfer Conference , Charlotte, NC, July 2004.

63. Cao, Y. and Murthy, J.Y; *Simulation of Granular and Gas-Solid Flows of Ellipsoidal Particles*; presented at the ASME National Heat Transfer Conference, Charlotte, NC, July 2004.

62. Singhal, V., Garimella, S. and Murthy, J.Y., *Numerical Characterization of Low-Reynolds Number Flow through the Nozzle-Diffuser Element in a Valveless Micro-Pump*, TED, AJ03-507, The 6th ASME/JSME Thermal Engineering Joint Conference, March 16-20, Hawaii, 2003.

61. Boyalakuntla, D. and Murthy, J.Y., *Discrete Element Simulation of the Flow of Granular Material*, presented at the SIAM conference on Computational Science and Engineering, San Diego, CA, Feb 10-14, 2003.

60. Narumanchi, S.V.J, Murthy, J.Y. and Amon, C.H., *Computations of Sub-Micron Heat Conduction Accounting for Phonon Dispersion*, HT2003-47490, ASME Summer Heat Transfer Conference, Las Vegas, NV, July 21-23, 2003.

59. Murthy, J.Y. and Mathur, S.R*., Ballistic-Diffusive Approximation for Phonon Transport Accounting for Polarization and Dispersion*, HT2003-47491, ASME Summer Heat Transfer Conference, Las Vegas, NV, July 21-23, 2003.

58. Vadakkan, U., Murthy, J.Y. and Garimella, S., *Transient Analysis of Flat Heat Pipes*, HT2003-40349, ASME Summer Heat Transfer Conference, Las Vegas, NV, July 21-23, 2003.

57. Xu, X., Cheng, C., Choudhury, I., Wang, X., Murthy, J.Y. and Grama, A., *Numerical Simulation of Femto-Second Laser Ablation of Copper: Comparison Between Molecular Dynamics and Finite Difference Calculations*, HT2003-47596, ASME Summer Heat Transfer Conference, Las Vegas, NV, July 21-23, 2003.

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55. Narumanchi, S.V.J, Murthy, J.Y. and Amon, C.H., *Computations of Heat Transport in Sub-Micron Thin Films Accounting for Phonon Dispersion and Polarization*, IMECE 2003-42447, ASME IMECE, Washington D.C., November 15-21, 2003.

54. Murthy, J.Y. and Mathur, S.R.; *An Improved Computational Procedure for Sub-Micron Heat Conduction*; Paper No. IMECE2002-32123, ASME IMECE, New Orleans, LA, November, 2002.

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52. Shwaish, I.K., Amon, C.H. and Murthy, J.Y.; *Performance Evaluation and Optimization of Serrated Heat Sinks*; presented at ITherm 2002, San Diego, CA 2002.

51. Murthy, J.Y. and Mathur, S.R.; *Computational Techniques for Sub-Micron Thermal Conduction;* presented at Thermes 2002, Santa Fe, NM , January 2002.

50. Xia, C. and Murthy, J.Y.; *A Finite Volume Based Time Splitting Scheme for Computation of Electrodeposition*; presented at IMECE 2001, New York, November 2001.

49. Murthy, J.Y., and Mathur, S.R.; *Computation of Sub-Micron Thermal Transport Using an Unstructured Finite Volume Method*; presented at IMECE 2001, New York, November 2001.

48. Boyalakuntla, D., Murthy, J.Y. and Amon, C.H.; *Computation of Natural Convection in Channels with Staggered Pin Fins*; presented at IMECE 2001, New York, November 2001.

47. Amon, C., Gabriel, K., Kumta, P., Murthy, J. and Yao, S.C.; *MEMs Enabled Micro-Spray Cooling System for Thermal Control of Electronic Chips*; presented at IMECE, New York, November 2001.

46. Shwaish, I.K., Murthy, J.Y., Amon, C.H., and Bains, D.; *Performance Evaluation of Serrated Plate Fins For Undercarriage Electronics Cooling in Transportation Applications*; presented at IMECE 2001, New York, November 2001.

45. Jain, A., Murthy, J.Y. and Amon. C.H.; *Buoyancy-Driven Cooling in Inclined Channels with Pin Fins*; presented at the National Heat Transfer Conference, Anaheim, CA, June 2001.

44. Mathur, S.R. and Murthy, J.Y.; *Computation of Multi-Mode Heat Transfer with Internal Radiation and Phase Change*; presented at Computational Heat Transfer '01, Queensland, Australia, May 2001.

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41. Boyalakuntla, D., and Murthy, J.Y.; *COBRA-based Compact Models for Simulation of Electronic Chip Packages*; presented at InterPACK 2001, Hawaii, U.S.A, July 2001.

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39. Narumanchi, S.V.J., Amon, C.H. and Murthy, J.Y.; *Dielectric Jet Impingement Cooling of Electronic Chips*; Paper No. NHTC2000-12138, Pittsburgh, PA, August 2000.

38. Murthy, J.Y., and Mathur, S.R.; *Computation of Radiation Heat Transfer in Packed Beds Using an Unstructured Finite Volume Scheme*; presented at the ISHMT-ASME National Heat and Mass Transfer Conference, Pune, India, January 12-14, 2000.

37. Murthy, J.Y., and Mathur, S.R.; *Unstructured Finite Volume Methods for Multi-Mode Heat Transfer*; presented at the International Symposium on Challenges and New Directions in Computation of Internal Flows, Center for Computational Fluid Dynamics, IIT Madras, Chennai, India, January 7-8, 2000.

36. Mathur, S.R., and Murthy, J.Y.; *Acceleration of Anisotropic Scattering Computations Using Coupled Ordinate Method (COMET)*; ASME National Heat Transfer Conference, 2000.

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31. Mathur, S.R. and Murthy, J.Y.; *A Point-Coupled Multi-Grid Acceleration Scheme for Radiation Heat Transfer*; AIAA 99-0872, Reno, Nevada,1999.

30. Murthy, J.Y., and Mathur, S.R.; *A Finite Volume Method for Radiative Heat Transfer in Semi-Transparent Media*; AJTE99:6293, 5th ASME/JSME Thermal Engineering Conference, March 15-19, 1999, San Diego, CA.

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28. Mathur, S.R. and Murthy, J.Y.; *Radiative Heat Transfer in Periodic Geometries Using a Finite Volume Scheme*; HTD-Vol. 361-2, 1998, pp. 145-156.

27. Murthy, J.Y. and Mathur, S.; *A Finite Volume Method for Radiative Heat Transfer Using Unstructured Meshes*; AIAA-98-0860, 36th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 1998.

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23. Weiss, J.M. and Murthy, J.Y.; *Computation of Reacting Flowfields Using Unstructured Adaptive Meshes*; Fluent Inc. TN-86, AIAA 95-0870; presented at AIAA 33rd Aerospace Sciences Meeting and Exhibit, Reno, NV, January 9-12, 1995.

22. Weiss, J.M., and Murthy, J.Y.; *Computation of Propulsion-Related Flow Fields Using Unstructured Adaptive Meshes*; 5th Annual Symposium on Space Propulsion, Pennsylvania State University, September, 1993.

21. Thompson, M., Missaghi, M., and Murthy, J.Y.; *Computer Simulation of the Free Surface Between Two Fluids in an Industrial Reactor*; AMD-Vol. 160/MD-Vol. 41, Recent Advances in Mechanics of Structured Continua, Presented at ASME Applied Mechanics Meeting, Charlottesville, VA, 1993.

20. Perng, C.Y. and Murthy, J.Y.; *A Sliding Mesh Technique for Simulation of Flow in Mixing Tanks*; ASME Winter Annual Meeting, New Orleans, LA, November 28-December 3, 1993.

19. Murthy, J.Y., and Choudhury, D.; *Computation of Participating Radiation in Complex Geometries*; HTD-Vol. 203, ASME, 1992.

18. Murthy, J.Y., and Choudhury, D.; *Flow Multiplicity in Natural Convection in Cylindrical Annuli*; HTD-Vol. 214, ASME, 1992.

17. Perng, C-Y., and Murthy, J.Y.; *A Moving Mesh Technique for the Simulation of Flow in Mixing Tanks*; AIChE Winter Annual Meeting, Miami Beach, December 1992.

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15. Murthy, J.Y.; *An Adaptive Bin Eulerian Method for Particle Transport*; ASME 91-HT-33, 1991.

14. Habib, H., Murthy, J.Y., and Wood, B.D.; *Effect of Non-Absorbable Gas on the Performance of a Falling Film Absorber for Open-Cycle Absorption Solar Cooling System*; presented at the ASME Solar Energy Conference, 1989, San Diego,CA.

13. Murthy, J.Y.; *Transient Low-Prandtl Number Natural Convection in a Rectangular Cavity*; presented at the 1989 ASME Winter Annual Meeting, San Francisco, CA.

12. Murthy, J.Y.; *Computation of Viscous Free Surface Flow in a Rectangular Cavity*; presented at the AIAA Thermophysics, Plasmadynamics and Lasers Conference, San Antonio, Texas, 1988.

11. Ameel, T. and Murthy, J.Y.; *Simulation of Mixed Convection in a Barrel Reactor*; presented at the AIAA Thermophysics, Plasmadynamics and Lasers Conference, San Antonio, Texas, 1988.

10. Murthy, J.Y. and Patankar, S.V.; *A Partially Parabolic Calculation Procedure for the Prediction of Duct Flows in Irregular Geometries*; Numerical Methods in Heat Transfer, Eds. J.L.S Chen and K. Vafai, HTD-Vol. 62, 1986.

9. Murthy, J.Y., Chyu, M.K.; *A Numerical Study of Laminar Flow and Heat Transfer in a Channel with a 180-Degree Ben*; presented at the 1987 ASME/AICHE National Heat Transfer Conference, August 9-12, Pittsburgh, PA.

8. Rued, K., Murthy, J.Y. and Metzger, D.; *Turbulent Convection at the Corner Intersection of Heated and Unheated Walls in a Square Flow Channel*; presented at the 1987 ASME Winter Annual Meeting, December, 1987, Boston, MA.

7. Murthy, J.Y.; *The Effect of Centrifugally Driven Buoyant Convection on Heat Transfer from a Rotating Cylinder with Circumferential Fins*; presented at the AIAA/ASME Heat Transfer and Thermophysics Conference, June 2-4, 1986, Boston, MA.

6. Murthy, J.Y.; *Laminar Forced convection in the Floating Zone Process: Some High Reynolds Number Results*; presented at the 1986 ASME Winter Annual Meeting, December 7-12, 1986, Anaheim, CA.

5. Murthy, J.Y.; *Laminar Mixed Convection Heat Transfer from a Rotating Cylinder with Circumferential Fins*; presented at the 8th National Heat and Mass Transfer Conference, December 29-31, 1985, Vishakhapatnam, India.

4. Murthy, J.Y., Singhal, A.C., and Hutchinson, G.L.; *Fluid Soil Structure Interaction During Seismic Excitation of Tanks*; Seismic Performance of Pipelines and Storage Tanks, PVP, Vol. 98-4, 1985.

3. Murthy, J.Y. and Patankar, S.V.; *A Numerical Study of Heat Transfer from a Rotating Cylinder with External Longitudinal Fins*; presented at the 21st National Heat Transfer Conference, July 24, 1983, Seattle, WA.

2. Murthy, J.Y., and Crowe, C.T.; *Aerodynamic Effects on Partial Motion Near Erosion Targets*; presented at the AIAA/ASME 3rd Joint Thermophysics, Fluids, Plasma and Heat Transfer Conference, June 10, 1982, St. Louis, MO.

1. Murthy, J.Y., and Patankar, S.V.; *Analysis of Heat Transfer from a Rotating Cylinder with Circumferential Fins*; Proceedings of the Symposium on Heat and Mass Transfer in Rotating Machinery, August 1982, Dubrovnik, Yugoslavia.

Conference Presentations (Unrefereed)

16. Mohaghegh, F., M. A. Alam and Murthy, J.Y.; *Phase-resolved Ocean Wave Prediction via Machine Learning*; 72nd Annual Meeting of of the APS Division of Fluid Dynamics, Seattle, WA, November 23-36, 2019.

15. Marepalli, P., Mathur, S.R. and Murthy, J.Y.; *Sensitivity Analysis and Property Computation in Nanoscale Thermal Transport*; Materials Research Society Meeting, Phoenix, AZ, 2019 (invited).

14. Mohaghegh, F. and Murthy, J.Y.; *Prediction of Thermal Conductivity of Lithium Ion Battery electrodes Using Machine Learning Techniques*; American Physical Society DFD Conference, Atlanta, GA, 2018.

13. Vadakkepatt, A., Mathur, S.R. and Murthy, J.Y.; *Topology Optimization for Fluid Flow Applications Using Unstructured Finite Volume Scheme*; Summer Heat Transfer Conference, 2016.

12. Mishra, C., Loy, J., Mathur, S.R. and Murthy, J.Y.; *Volume-averaged Boltzmann Transport Equation for Heat Transport in Nanoporous Composites*; Summer Heat Transfer Conference 2016.

11. Marepalli,P., Sellan, D.P., Shi,L., and Murthy, J.Y.; *Prediction of Thermal Conductivity of Ultrathin Graphite Foams*; Poster Presentation, Material Research Society, San Francisco, April 2013.

10. Marepalli, P., Mathur, S.R., and Murthy, J.Y.; *A Generalized Method for Computation of Exact Anharmonic Force Constants*; IMECE2013-66148, International Mechanical Engineering Congress and Exposition, San Diego, Nov. 2013.

9. Vallabhaneni, A.K., Singh,D., Bao, H., Ruan, X., and Murthy, J.Y.; Non-equilibrium between Energy Carriers in Laser-irradiated Graphene; MRS 2013 Spring Meeting, San Francisco.

8. Vallabhaneni, A., Murthy, J.Y., and Ruan, X.; *Electron-Phonon Non-Equilibrium in Single-Layer Graphene*; Proceedings of PHONONS 2012, page 128, Ann Arbor, MI, 2012.

7. Murthy, J.Y; "*Computational Techniques for Multiscale Thermal Transport in Multimaterial Systems*; Invited paper, MRS Spring Meeting, April 2011, San Francisco, CA.

6. Mathur, S.R., Chigullapalli, A., and Murthy, J.Y.; *Benchmarking of Discrete Stochastic Galerkin Solver for Computational Fluid Dynamics*; SIAM CSE 2011, Reno, Nevada.

5. Singh, D., Murthy, J.Y and Fisher, T.S.; "*Frequency Detail of Phonon Scattering in Graphene*"; MRS Spring Meeting, April 2011, San Francisco, CA.

4. Singh, D., Murthy, J.Y., and Fisher, T.S.; *Phonon Dispersion and Thermal conductivity in Graphene Nanoribbons*; 2010 MRS Spring Meeting, San Francisco, April 5-9, 2010.

3. Boyalakuntla, D. and Murthy, J.Y., *Simulation of Vibrated Binary Mixtures using Discrete Element Simulatio*n, presented at the AICHE Annual Meeting, San Francisco, Nov. 16-21, 2003.

2. Boyalakuntla, D. and Murthy, J.Y., *Effect of Drag Correlations on Fluidized Bed Simulation*, presented at the AICHE Annual Meeting, San Francisco, Nov. 16-21, 2003.

1. Boyalakuntla, D. and Murthy, J.Y., *Discrete Element Simulations of Bubbling Fluidized Bed with a Binary Particle Size Distribution*, presented at the AICHE Annual Meeting, San Francisco, Nov. 16-21, 2003.

Public-Domain Reports from Fluent Inc.

5. Tysinger, T.L., Missaghi, M. and Murthy, J.Y.; *Parallel Processing for Solution-Adaptive Computation of Moving Front Problems*; Final Report, NSF contract DMI-9360521, 1995.

4. Weiss, J.M. and Murthy, J.Y.; *Advanced Fluid Dynamics Code Development for Centrifugal Compressors*; Final Report, DOD contract DAAJ02-92-C-0053, 1995.

3. Murthy, J.Y.; *Development and Assessment of Advanced Turbulence Models on Unstructured Triangular Meshes*; Final Report, NASA contract NAS3-26912, 1993.

2. Murthy, J.Y., Missaghi, M., and Mathur, S.; *Advanced Modeling of Combustion Systems*; Final Report, NASA contract NAS1-19307, 1994.

1. Murthy, J.Y. and Mathur, S.; *Fluid Structure Interaction Using Unstructured Meshes*; Final Report, NASA contract NAS3-27220, 1993.

Other

Gorman J.M., Abraham J.P., Acharya S, Avedisian T, Baliga B.R., Bejan A, Charmchi M, Cheng P, Davidson J.H., Dhir V.K. *et al.*; *In Memoriam: Ephraim M. Sparrow: May 27, 1928 – August 1, 2019*; Numerical Heat Transfer Part A: Applications, Vol. 76, No. 9, pp. 683-686, 2019.

Selected Keynotes, Invited Talks and Panels

Only recent selected talks are listed for brevity.

Plenary Lecture, 7th American Society for Thermal and Fluids Engineers (ASTFE) Conference, Las Vegas, NV, May 2022.

Keynote Lecture, ITherm 2021, San Diego, June 2021.

Frontiers in Mechanical Engineering Distinguished Seminar, *"Beyond CFD: Possible Futures in the Computational Thermal Sciences,"* April 2021.

Rutgers University, *"Automatic Code Differentiation for Thermal-Fluid Problems,"* November 2020.

Monte and Usha Ahuja Distinguished Lecture, Ohio State University*, "Applications of Automatic Code Differentiation in Heat Transfer,"* November, 2019.

Inspiration Lecture, Virginia Tech College of Engineering, *"Automatic Code Differentiation for Fun and Profit,"* September 2019.

Panelist, Women in Heat Transfer, ASME Summer Heat Transfer Conference, Bellevue, Washington, July 2019.

M.V. Krishnamurthy Plenary Lecture, "*Topology Optimization Techniques for Fluid Flow and Heat Transfer*," International Heat and Mass Transfer Conference, Hyderabad, India, December 2017.

Tedori-Callinan Distinguished Lecture, "*Topology Optimization Using Unstructured Finite Volume Methods*," University of Pennsylvania, October, 2016.

Plenary lecture, "*Topology Optimization for Thermal-Fluid Problems Using Unstructured Finite Volume Methods*," 4th International Conference on Computational Methods for Thermal Problems, Atlanta, GA, 2016.

Invited talk, "*Fast Computational Techniques for Sub-Continuum Transport*," Technion, Israel, March, 2014.

Invited talk, "*Fast Computational Techniques for Sub-Continuum Transport*," UC San Diego, May, 2014.

Invited talk, "*Uncertainty Quantification for Aerospace Systems*" AFRL CITMAV workshop, August, 2014.

Keynote lecture, "*Computational Techniques for Sub-Continuum: Opportunities and New Directions*," ASME-ISHMT Conference, IIT Kharagpur, India, December 2013.

NSF Workshop on Energy Conservation and Waste Heat Recovery, "*Fast Computational Techniques for Sub-Micron Thermal Transport,*" Institute for Pure and Applied Mathematics, UCLA, Los Angeles, November, 2013.

Qualcomm, Corporation, "*Electro-Thermal Simulation of Advanced Node Devices*," San Diego, CA, November, 2013.

Hawkins Memorial Lecture, Purdue University, "*Predictive Simulation in the Thermal Sciences*" West Lafayette, IN, October, 2013.

Hawkins Heat Transfer Lecture, Purdue University, "*Fast Computational Techniques for Sub-Continuum Transport*," West Lafayette, IN, October 2013.

University of Notre Dame, "*Fast Computational Techniques for Sub-Continuum Transport*," South Bend, IN, October 2013.

Gordon Research Conference on Nanomechanical Interfaces, HKUST, "*Phun with Phonons*", Hong Kong, August, 2013.

ASME Summer Heat Transfer Conference, Panel on Multiscale Heat Transfer Simulation, "*Uncertainty Quantification in Multiscale Heat Transfer*", Minneapolis, MN, July 2013.

ASME Summer Heat Transfer Conference, Panel on Career Paths for Women in ME "*Numerical Heat Transfer - Why do Anything Else?*" Minneapolis, MN, July 2013.

SSAP Conference, "*Predictive Simulation of RF MEMS*," Albuquerque, NM, July 2013.

Lawrence Livermore National Laboratory, "*Recent Advances in the Simulation of Microsystems*," Livermore, CA, July 2013.

Qualcomm Corporation, "*Advances in the Simulation of Sub-Micron Transport*," San Diego, CA, June 2013.

International Workshop on Micro and Nanostructures for Phase Change Heat Transfer, MIT, "*Multiscale Uncertainty Quantification in Thermal Transport,*" Boston, MA, April 2013.

University of Houston, "*Uncertainty Quantification in Simulation of Microsystems: Opportunities and New Directions*," Houston, TX, January 2013.

SPONSORED RESEARCH

Selected Sponsored Research Projects

Title	Sponsor	Amount	Period	PI/Co-PI
CDS&E: Decision Framework for Predictive Simulation of Highly Non-Equilibrium Thermal Transport in Nanomaterials	NSF	$510,493	8/15/14-7/31/17	PI
CITMAV: Center for Integrated Thermal Management of Aerospace Vehicles	AFRL	$3M (UT share $175,607)	2/7/14-10/31/16	Co-PI
Evaluation of Gyroidal Battery Structures	LLNL	$30,000	4/30/14-9/30/14	PI
Qualcomm QinF Fellowship Award (Fellowship to students)	Qualcomm	$100K	9/1/14-8/31/15	PI
CPS: Synergy: Cyber Enabled Manufacturing Systems (CeMs) for Small Lot Manufacture	NSF	$1.0M	10/1/2012-9/30/2016	Co-PI
NASCENT: NSF ERC on Nanomanufacturing Systems for Mobile Computing and Energy Technologies	NSF	$18.0 M	9/1/2012-8/31/2015	Co-PI
PRISM: Center for Prediction of Reliability, Integrity and Survivability of Microsystems	DOE/NNSA (Includes $4.25M in cost-share)	$21.25M	3/1/08-4/15/14	PI
Modeling and Simulation of Thermal Transport across Interfaces	AFRL	$41,900	6/1/08-5/31/09	PI
Energizing Research through Cyber infrastructure: Renovation of Research Data Center	NSF	$1.99 M	9/01/10-8/31/13	Co-PI
Development of Nano Thermal Interface Materials	DARPA/Raytheon	$797,775	06/05/09-12/31/10	Co-PI
IMPACT: Center for Advancement of MEMS/NEMS VLSI	DARPA	$4.5M	9/19/06-9/18/09	Co-PI
Micro/Nanotechnologies for Ultra High Flux Cooling and Enhanced Thermal Spreading	Sony	$532,259	10/01/07-9/30/09	Co-PI
Microscale Transport in Evaporating Thin Films	NSF	$149,227	6/01/02-5/21/10	Co-PI
qHUB: Cyberinfrastructure for Community Driven Research and Education in Heat Transfer	NSF	$157,588	10/01/07-9/31/08	Co-PI
Thermal Ground Plane: Microscale Transport Analysis and Characterization and Nanostructured Material Wick System Development	DARPA/Raytheon	$778,393 $469,260 $528,353	4/28/08-1/23/12 05/05/08-11/05/10 10/1/07-9/30/11	Co-PI

Title	Sponsor	Amount	Period	PI/Co-PI
Network for Computational Nanotechnology	NSF	$18M	9/15/02-8/31/10	Co-PI
Integrated Multiscale Thermal Simulation	PC Krause Associates	$246,343	6/19/06-4/30/08	Co-PI
Fumigation Modeling, Monitoring and Control for Precision Fumigation of Flour Mill and Food Processing Structures	USDA/Cooperative State Research Service	$450,000	9/1/0 - 8/31/08	Co-PI
ITR: Concurrent Electro-Thermal Modeling of Ultra-Scaled MOS Technologies	NSF	$393,950	8/15/03-7/31/08	PI
ITR: Large-Scale Continuum and Molecular Dynamics Simulations of Ultra-Fast Laser Machining	NSF	$411,885	9/01/02-7/31/07	PI
HOTPAK: A CFD Design and Optimization Tool for Curing Ovens	Indiana 21st Century Fund	$429,456	8/20/04-8/20/07	PI
CFD Simulation of Wet Friction Brakes and Clutches, Phase I	Raybestos	$22,990	1/1/06-6/30/06	PI
CFD Simulation of Wet Friction Brakes and Clutches, Phase II	Raybestos	$27,932	1/1/07-6/30/07	PI
IBM Faculty Award	IBM	$90K	8/20/03-Present	PI
Multiscale Simulation	Fluent Inc.	$100K	1/26/04-present	PI
Carbon Nanotube Wick Structures for Electronics	Intel	$50K	12/31/05-present	PI
Cooling Technologies Research Center (Ongoing collaboration)	Representative Projects: Phase Change Materials Heat Pipes Thin Film Evaporation Metallic Foams	$143.6K $124K $161K $85K	2003-2010	Co-PI

Title	Sponsor	Amount	Period	PI/Co-PI
EDIFICE: Embedded Droplet Impingement for Integrated Cooling of Electronics	DARPA	$1.87M	1999-2002	PI (with C. Amon)
Computation of Flow and Heat Transfer in Gas-Solid Transport	DOE/NETL	$246K	1998-2001	PI
CFD Code Development	Fluent	$50K	1998-2001	PI
Modeling and Fabrication of Ultra-Deep Microsystems	Pennsylvania Infrastructure Technology Alliance (PITA)	$85K	1998-2000	PI
Computational Tools for Thermal Management of Electronics	PITA	$152K	1999-2001	PI
Numerical Simulation and Experimental Verification of Microscale Heat Transfer in Electronic Devices	PITA	$46K	2000-2001	PI
Axle Parasitic Loss Computations Using CFD	Caterpillar	$85K	2000-2001	PI
Thermal Management of Under-Carriage Heat Loads	AdTranz	$65K	2000-2001	PI
Phonon Transport in Nanostructures with Applications to Ultra-Thin SOI Transistors	NSF NIRT	$3.2M	2000-2003	Co-PI

EDUCATIONAL ACTIVITIES

Graduate Theses Supervised

Name	Degree	Graduation Date	Co-Chair
D. Boyalakuntla	M.S.	2000	
C. Xia	Ph.D	2001	
D. Boyalakuntla	Ph.D	2003	
Y. Cao	Ph.D	2003	
S. Narumanchi	Ph.D	2003	C. Amon, CMU
U. Vadakkan	Ph.D	2004	S. Garimella, Purdue
J.Jewers	M.S. (Non-Thesis)	2005	
S. Krishnan	Ph.D	2006	S. Garimella, Purdue
S. Soni	M.S.	2006	
N. Dhillon	M.S.	2006	
C. G. Bhatt	M.S.	2006	D. Maier, Purdue
P. Maruti Ram	M.S. (Non-Thesis)	2006	
V. Ambatipudi	M.S.	2007	
T. Wang	Ph.D	2007	
S. Kumar	Ph.D	2007	M.A. Alam, Purdue
L. Sun	Ph.D	2008	
C. Ni	Ph.D	2008	
D. Pradhan	M.S.	2008	
J.A. Pascual-Gutierrez	Ph.D	2010	
H. Dhavaleswarapu	Ph.D	2010	S. Garimella, Purdue
C. Varanasi	Ph.D	2011	
J.Loy	MS+Ph.D	2013	
D. Singh	Ph.D	2011	T.S. Fisher, Purdue
Z. Huang	Ph.D	2010	T.S. Fisher, Purdue
R. Ranjan	Ph.D	2011	S. Garimella, Purdue
R. Annapragada	Ph.D	2011	S. Garimella Purdue
B. Pax	M.S.	2011	
K. Bodla	Ph.D	2013	S. Garimella, Purdue
S. Das	Ph.D	2013	S. Mathur , UT
A.Vallabhaneni	Ph.D	2014	X. Ruan, Purdue
C. Mishra	Ph.D	2016	
Ajay Vadakkepatt	Ph.D	2016	
P. Marepalli	Ph.D	2015	
B. Trembacki	Ph.D	2015	
D. Moser	Ph.D	2017	
Y. Huang	M.S.	2016	

Postdoctoral Fellows Supervised

Yanguang Zhou	Post-doctoral Fellow	2018-present	Co-supervised with T.S. Fisher, UCLA
Fazlolah Mohaghegh	Postdoctoral Fellow	2018-present	

Courses Taught at Purdue and UT Austin

Semester	**Course**	**Course Score (5.0 Max)**	**Instructor Score (5.0 Max)**
Fall 2001	ME 309 *Fluid Mechanics* 3 credits	unavailable	unavailable
Spring 2002	ME 608 *Numerical Methods for Heat, Mass and Momentum Transfer* 3 Credits	4.8	4.9
Fall 2002	ME 581 *Numerical Methods in Mechanical Engineering* 3 Credits	4.3	4.6
Spring 2003	ME 315 *Heat and Mass Transfer* 3 Credits	3.9	4.0
Fall 2003	ME 605 *Convection of Heat and Mass* 3 Credits	4.4	4.9
Spring 2004	ME 608 *Numerical Methods for Heat, Mass and Momentum Transfer* 3 Credits	4.7	4.6
Fall 2004	ME 315 *Heat and Mass Transfer* 3 Credits	3.9	4.5
Spring 2005	ME 315 *Heat and Mass Transfer* 3 Credits	3.7	4.0
Maymester 2005	ME 595M *Computational Methods for Nanoscale Thermal Transport* 1 Credit	--	--
Fall 2005	ME 505 *Intermediate Heat Transfer* 3 Credits	4.7	4.7
Spring 2006	ME 608 *Numerical Methods for Heat, Mass and Momentum Transfer* 3 Credits	4.8	4.9
Fall 2006	ME 309 *Fluid Mechanics* 3 Credits	3.4	4.2
Spring 2007	ME 309 *Fluid Mechanics* 3 Credits	4.1	4.8
Maymester 2007	ME 595M *Computational Methods for Nanoscale Thermal Transport* 1 Credit	--	--
Fall 2007	ME 315 *Heat and Mass Transfer Divisions 1&2* 3 Credits	4.0, 3.9	4.5, 4.6
Spring 2008	ME 608 *Numerical Methods for Heat, Mass and Momentum Transfer* 3 Credits ME 697R *Computation Methods for Nanoscale Energy Transport* 3 Credit (with X. Ruan and T.S. Fisher)	4.7 N/A	4.9 N/A
Spring 2009	ME 315 *Heat and Mass Transfer*	4.1	4.6
Spring 2010	ME 608 *Numerical Methods for Heat, Mass and Momentum Transfer* 3 Credits ME 697R *Computation Methods for Nanoscale Energy Transport* 3 Credit (with X. Ruan and T.S. Fisher)	4.7	4.8
Fall 2010	ME 597/AAE 590 Introduction to Uncertainty Quantification (with A. Alexeenko, AAE) 1 Credit	N/A	N/A
Spring 2011	ME 608 *Numerical Methods for Heat, Mass and*	4.8	4.9

	Momentum Transfer 3 Credits		
Fall 2012	ME 339: Heat Transfer	3.6	3.8
Fall 2013	ME 339: Heat Transfer	4.3	4.4
Spring 2015	ME 397: *Numerical Methods for Heat, Mass and Momentum Transfer*	4.8	4.8

SERVICE

Prof. Murthy has been an active member of the international mechanical engineering community. She has been an active member of ASME, has served on numerous conference program committees, and organized conference tracks and sessions nearly every year for ASME, InterPACK, and ITherm. In the interest of brevity, a few selected service activities are listed below.

National and International Activities (Selected)

Memberships In Professional Societies

Vice Chair, Section 10 Peer Committee, NAE
Chair, Program Committee, ASEE Engineering Deans Institute, 2022.
Executive Committee, Engineering Deans' Council, 2017
Engineering Deans' Public Policy Forum, 2017- present
ASME Technical Committee on Publications and Communications; ASME Committee on Honors; ASME K-16 and K-20 Committees; past member, ASME Technical Program Committee, ASME Membership Development Committee, ASEE,
Treasurer, ASME ME Department Heads Committee
Member, Big 10+ ME Department Heads Committee

Program Review Committees and Advisory Boards

Member, Selection Committee, INFOSYS Prize, 2018-present
Lawrence Livermore National Labs Engineering Directorate Review Committee, 2015-present
Lawrence Berkeley National Laboratories, Chair, Energy Technologies Review Committee, 2020 – present
National Renewable Energy Laboratories (NREL) Strategic Plan for High Performance Computation Reviewer (2018)
Reviewer, US DOE National Energy Technology Laboratory Strategic Plan on High Performance Computing, (2018)
University of Delaware School of Engineering Advisory Committee, 2019 - present
University of Connecticut School of Engineering Review Committee (2019).
Carnegie Mellon University Department of Mechanical Engineering 8-year Review Committee (2019).
Hong Kong University School of Engineering Review Committee (2018)
City University of Hong Kong CSE Review Committee (2017)
Technion School of Engineering Review Committee (2017)
Department of Mechanical Engineering, University of Utah (2017)
Department of Mechanical Engineering, Rice University (2017)
Department of Mechanical Engineering, University of Florida (2016)
Rice University School of Engineering Review Committee (2015)
Department of Mechanical Science and Engineering, University of Illinois, Urbana Champaign (2015)
Department of Mechanical Engineering, University of Wisconsin-Madison (2015)
Department of Mechanical Engineering, University of Minnesota (2015)
Department of Mechanical Engineering, University of Delaware (2015)

UCLA Committees

Future Planning Task Force for COVID19, 2020
Chair, Search Committee, Dean of Anderson School of Management, 2019
Chair, Search Committee, Dean of Undergraduate Division, 2020
GO IT Board for UCLA-wide IT Governance, 2018-present

Cyber-risk and Data Security Governance Board, UCLA, 2020-present
Review Committee, Dean, UG Division, 2018

Executive Vice Chancellor Deans' Council, 2016 - present
Professional School Deans' Council, 2016-present
Advisory Board, Sustainable LA Grand Challenge, 2017-present

University Committees

University of Texas Committees

Chair, Vice President for Research Search Committee, 2015
Undergraduate Curriculum Advancement Committee, Department of Mechanical Engineering, UT Austin, 2012-2015
35-in-5 Women in ME Committee, Department of Mechanical Engineering, UT Austin, 2013-2015, Various CSE search and review committees

Purdue Committees

Chair, Birck Director Search Committee, 2010-2011
College of Engineering Strategic Planning Team Chair, 2009.
Chair, Institute for Defense Innovation Center Review Committee, 2009.
Member, Search Committee, Fedderson, Fehsenfeld, Cummins and Kenninger Chairs, 2008-2009.
Computing Research Institute (CRI) Director Search Committee, 2007-2008.
Pharma Search Committee, 2007-2008.
ECE Faculty Search Committee, 2007-2008.
ME Curriculum Committee, 2007-2008.
ME Special Opportunities Search Committee, 2006-2007.
Network of Computational Nanotechnology Leadership Council, 2003-2007.
ME Leadership Team 2004-2006.
Heat Transfer Area Chair, 2004-2006.
ME Primary Committee 2001-2011.
ME Internal Review Committee 2003-2005.
ME Communications Committee, 2002-2005.
Nanotechnology Cluster Search Committee, 2002-2005.
Diversity Action Committee, 2002-2005.
ME Graduate Committee, 2002-2004.
ME Research Committee, 2002-2003.