



## Sanjiva Lele

Edward C. Wells Professor of the School of Engineering and Professor of Mechanical Engineering  
Aeronautics and Astronautics

### CONTACT INFORMATION

- **Administrator**

Renee Quiroz - Administrative Associate

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**Tel** 650-723-2867

### Bio

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#### BIO

Professor Lele's research combines numerical simulations with modeling to study fundamental unsteady flow phenomena, turbulence, flow instabilities, and flow-generated sound. Recent projects include shock-turbulent boundary layer interactions, supersonic jet noise, wind turbine aeroacoustics, wind farm modeling, aircraft contrails, multi-material mixing and multi-phase flows involving cavitation. He is also interested in developing high-fidelity computational methods for engineering applications.

#### ACADEMIC APPOINTMENTS

- Professor, Aeronautics and Astronautics
- Professor, Mechanical Engineering
- Member, Bio-X
- Member, Institute for Computational and Mathematical Engineering (ICME)

#### HONORS AND AWARDS

- Fellow American Institute of Aeronautics and Astronautics, American Institute of Aeronautics and Astronautics (2026)
- Fluid Dynamics Prize, American Physical Society (2025)
- AIAA Wind Energy Conference Best Paper Award with Aditya Ghate, Niranjana Ghaisas and Aaron Towne, American Institute of Aeronautics and Astronautics (2019)
- Distinguished Alumnus Award, IIT Kanpur, India (2017)
- AIAA Aeroacoustics Award, American Institute of Aeronautics & Astronautics (2016)
- AIAA Best Paper Award with David Dawson, AIAA Fluid Dynamics Technical Committee (2015)
- Associate Fellow AIAA, American Institute of Aeronautics and Astronautics (2015)
- AIAA Best Paper Award with Britton Olson, AIAA Fluid Dynamics Technical Committee (2012)
- AIAA Best Student Paper Award with William Wolf, AIAA/CEAS Aeroacoustics Conference (2011)
- Stanford Asian American Faculty Award, Stanford Asian American Faculty (2004)
- Fellow American Physical Society, American Physical Society (2001)

- RT Knapp Award with Ted Manning, ASME Fluids Engineering Division (1999)
- Presidential Young Investigator Award, National Science Foundation (1991)
- F N Frenkiel Award, American Physical Society, Division of Fluid Dynamics (1986)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Associate Editor, Journal of Fluid Mechanics (1994 - 2004)
- Associate Editor, Physical Review Fluids - American Physical Society (2021 - present)

## **PROFESSIONAL EDUCATION**

- PhD, Cornell , Mechanical Engineering (1985)

## **Teaching**

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### **COURSES**

#### **2025-26**

- Advanced Topics in Turbulence: ME 461 (Aut)
- Fundamentals of Acoustics: AA 201A (Spr)
- Partial Differential Equations in Engineering: CME 204, ME 300B (Win)

#### **2024-25**

- Partial Differential Equations in Engineering: CME 204, ME 300B (Win)
- Topics in Aeroacoustics: AA 201B (Spr)

#### **2023-24**

- Advanced Topics in Turbulence: ME 461 (Aut)
- Fundamentals of Acoustics: AA 201A (Spr)
- Seminar in Fluid Mechanics: ENGR 298 (Spr)

#### **2022-23**

- Advanced Fluid Mechanics - Flow Instabilities: ME 451B (Aut)
- Aerospace Computational Science: AA 113 (Win)
- Topics in Aeroacoustics: AA 201B (Spr)

## **STANFORD ADVISEES**

### **Doctoral Dissertation Reader (AC)**

Miya Coimbra, Tim Flint, Ali Lasemi, Federico Rios Tascon, Michael Whitmore, Christopher Williams, Wenyan Xue

### **Doctoral Dissertation Advisor (AC)**

Anjini Chandra, Steven Dai, Olivia Martin, Albo Voci, Andy Wu, Jun Yamasaki

### **Master's Program Advisor**

Sean Auer, Katherine Cao, Jeffrey Davis, Yuhao Huai, Elaine Liu, Gautam Neon, Sam Peterson, Anthony Sanguinetti, Nikhil Seshadri, Jasper Wood, Eric Zhao

### **Doctoral Dissertation Co-Advisor (AC)**

Alex Storrer

### **Doctoral (Program)**

Lucy Brown, Cheyenne Halverson, Andrew Potts

## Publications

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### PUBLICATIONS

- **A closure mechanism for screech coupling in rectangular twin jets** *JOURNAL OF FLUID MECHANICS*  
Jeun, J., Wu, G., Lele, S. K.  
2024; 987
- **Heat transfer and transport property contrast effects on the compressible Rayleigh-Taylor instability** *PHYSICAL REVIEW FLUIDS*  
Cherng, K., Lele, S., Livescu, D.  
2024; 9 (4)
- **Wavelet-based pressure decomposition for airfoil noise in low-Mach number flows** *PHYSICS OF FLUIDS*  
Kang, D., Lee, S., Brouzet, D., Lele, S. K. K.  
2023; 35 (7)
- **Assessment of diffuse-interface methods for compressible multiphase fluid flows and elastic-plastic deformation in solids** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Jain, S. S., Adler, M. C., West, J. R., Mani, A., Moin, P., Lele, S. K.  
2023; 475
- **Unstructured Large-Eddy Simulations of Rectangular Jet Screech: Assessment and Validation** *AIAA JOURNAL*  
Jun Wu, G., Lele, S. K., Jeun, J., Gustavsson, J., Sellappan, P., Kumar, R.  
2022
- **Scalable parallel linear solver for compact banded systems on heterogeneous architectures** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Song, H., Matsuno, K. V., West, J. R., Subramaniam, A., Ghate, A. S., Lele, S. K.  
2022; 468
- **Aeroacoustics of Twin Rectangular Jets Including Screech: Large-Eddy Simulations with Experimental Validation** *AIAA JOURNAL*  
Jeun, J., Karnam, A., Wu, G., Lele, S. K., Baier, F., Gutmark, E. J.  
2022
- **Analysis of second moments and their budgets for Richtmyer-Meshkov instability and variable-density turbulence induced by reshock** *PHYSICAL REVIEW FLUIDS*  
Wong, M., Baltzer, J. R., Livescu, D., Lele, S. K.  
2022; 7 (4)
- **Optimal closed-loop wake steering - Part 2: Diurnal cycle atmospheric boundary layer conditions** *WIND ENERGY SCIENCE*  
Howland, M. F., Ghate, A. S., Quesada, J., Martinez, J., Zhong, W., Larranaga, F., Lele, S. K., Dabiri, J. O.  
2022; 7 (1): 345-365
- **Subgrid-scale pressure field of scale-enriched large eddy simulations using Gabor modes** *PHYSICAL REVIEW FLUIDS*  
Hass, R. D., Ghate, A. S., Lele, S. K.  
2021; 6 (12)
- **Settling of two-way momentum and energy coupled particles subject to Boussinesq and non-Boussinesq heating** *THEORETICAL AND COMPUTATIONAL FLUID DYNAMICS*  
Horwitz, J. A. K., Ganguli, S., Lele, S. K., Mani, A.  
2021
- **Homogenized Flux-Body Force Treatment of Compressible Viscous Porous Wall Boundary Conditions** *AIAA JOURNAL*  
Huang, D. Z., Wong, M., Lele, S. K., Farhat, C.  
2021; 59 (6): 2045-2059
- **Optimal closed-loop wake steering - Part 1: Conventionally neutral atmospheric boundary layer conditions** *WIND ENERGY SCIENCE*  
Howland, M. F., Ghate, A. S., Lele, S. K., Dabiri, J. O.  
2020; 5 (4): 1315-38

- **Wind Turbine Performance in Very Large Wind Farms: Betz Analysis Revisited** *ENERGIES*  
West, J. R., Lele, S. K.  
2020; 13 (5)
- **Effect of tip spacing, thrust coefficient and turbine spacing in multi-rotor wind turbines and farms** *WIND ENERGY SCIENCE*  
Ghaisas, N. S., Ghate, A. S., Lele, S. K.  
2020; 5 (1): 51–72
- **Modelling of jet noise: a perspective from large-eddy simulations.** *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences*  
Bres, G. A., Lele, S. K.  
2019; 377 (2159): 20190081
- **A high-order weighted compact high resolution scheme with boundary closures for compressible turbulent flows with shocks** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Subramaniam, A., Wong, M., Lele, S. K.  
2019; 397
- **High-resolution Navier-Stokes simulations of Richtmyer-Meshkov instability with reshock** *PHYSICAL REVIEW FLUIDS*  
Wong, M., Livescu, D., Lele, S. K.  
2019; 4 (10)
- **Low Mach, compressibility, and finite size effects of localized uniform heat sources in a gas** *THEORETICAL AND COMPUTATIONAL FLUID DYNAMICS*  
Ganguli, S., Lele, S. K.  
2019; 33 (3-4): 341–58
- **Wind farm power optimization through wake steering.** *Proceedings of the National Academy of Sciences of the United States of America*  
Howland, M. F., Lele, S. K., Dabiri, J. O.  
2019
- **Drag of a heated sphere at low Reynolds numbers in the absence of buoyancy** *JOURNAL OF FLUID MECHANICS*  
Ganguli, S., Lele, S. K.  
2019; 869: 264–91
- **Modal analysis of the laminar boundary layer instability and tonal noise of an airfoil at Reynolds number 150,000** *INTERNATIONAL JOURNAL OF AEROACOUSTICS*  
Sanjose, M., Towne, A., Jaiswal, P., Moreau, S., Lele, S., Mann, A.  
2019; 18 (2-3): 317–50
- **A unified high-order Eulerian method for continuum simulations of fluid flow and of elastic-plastic deformations in solids** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Ghaisas, N. S., Subramaniam, A., Lele, S. K.  
2018; 371: 452–82
- **Importance of the nozzle-exit boundary-layer state in subsonic turbulent jets** *JOURNAL OF FLUID MECHANICS*  
Bres, G. A., Jordan, P., Jaunet, V., Le Rallic, M., Cavalieri, A. V. G., Towne, A., Lele, S. K., Colonius, T., Schmidt, O. T.  
2018; 851: 83–124
- **High-Order Eulerian Simulations of Multimaterial Elastic-Plastic Flow** *JOURNAL OF FLUIDS ENGINEERING-TRANSACTIONS OF THE ASME*  
Subramaniam, A., Ghaisas, N. S., Lele, S. K.  
2018; 140 (5)
- **Influence of the horizontal component of Earth's rotation on wind turbine wakes**  
Howland, M. F., Ghate, A. S., Lele, S. K., IOP  
IOP PUBLISHING LTD.2018
- **Large-eddy simulation study of multi-rotor wind turbines**  
Ghaisas, N. S., Ghate, A. S., Lele, S. K., IOP  
IOP PUBLISHING LTD.2018

- **Localized artificial diffusivity scheme for deflagrations and detonation waves** *COMPUTERS & FLUIDS*  
Lee, C., Lele, S. K.  
2017; 159: 33–52
- **High-order localized dissipation weighted compact nonlinear scheme for shock- and interface-capturing in compressible flows** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Wong, M. L., Lele, S. K.  
2017; 339: 179-209
- **Unstructured Large-Eddy Simulations of Supersonic Jets** *AIAA JOURNAL*  
Bres, G. A., Ham, F. E., Nichols, J. W., Lele, S. K.  
2017; 55 (4): 1164-1184
- **Instability waves in high-speed jets: near-and far-field DNS/LES data analysis** *INTERNATIONAL JOURNAL OF AEROACOUSTICS*  
Ryu, J., Lele, S. K.  
2015; 14 (3-4): 643-673
- **Stabilization of a hypersonic boundary layer using a felt-metal porous coating** *JOURNAL OF FLUID MECHANICS*  
Tritarelli, R. C., Lele, S. K., Fedorov, A.  
2015; 769: 729-739
- **Linear and nonlinear modelling of a theoretical travelling-wave thermoacoustic heat engine** *JOURNAL OF FLUID MECHANICS*  
Scalo, C., Lele, S. K., Hesselink, L.  
2015; 766
- **Compressible turbulent channel flow with impedance boundary conditions** *PHYSICS OF FLUIDS*  
Scalo, C., Bodart, J., Lele, S. K.  
2015; 27 (3)
- **Study of supersonic wave components in high-speed turbulent jets using an LES database** *JOURNAL OF SOUND AND VIBRATION*  
Ryu, J., Lele, S. K., Viswanathan, K.  
2014; 333 (25): 6900-6923
- **Parameterization of Boundary-Layer Transition Induced by Isolated Roughness Elements** *AIAA JOURNAL*  
Bernardini, M., Pirozzoli, S., Orlandi, P., Lele, S. K.  
2014; 52 (10): 2261-2269
- **On the Richtmyer-Meshkov instability evolving from a deterministic multimode planar interface** *JOURNAL OF FLUID MECHANICS*  
Tritschler, V. K., Olson, B. J., Lele, S. K., Hickel, S., Hu, X. Y., Adams, N. A.  
2014; 755
- **A second golden age of aeroacoustics?** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*  
Lele, S. K., Nichols, J. W.  
2014; 372 (2022)
- **Large-Eddy Simulations of a Normal Shock Train in a Constant-Area Isolator** *AIAA JOURNAL*  
Morgan, B., Duraisamy, K., Lele, S. K.  
2014; 52 (3): 539-558
- **Effect of adverse pressure gradient on high speed boundary layer transition** *PHYSICS OF FLUIDS*  
Franko, K. J., Lele, S.  
2014; 26 (2)
- **Numerical investigation of turbulence in reshocked Richtmyer-Meshkov unstable curtain of dense gas** *SHOCK WAVES*  
Shankar, S. K., Lele, S. K.  
2014; 24 (1): 79-95
- **Effects of mean flow convection, quadrupole sources and vortex shedding on airfoil overall sound pressure level** *JOURNAL OF SOUND AND VIBRATION*

- Wolf, W. R., Azevedo, J. L., Lele, S. K.  
2013; 332 (26): 6905-6912
- **Effects of plume-scale versus grid-scale treatment of aircraft exhaust photochemistry** *GEOPHYSICAL RESEARCH LETTERS*  
Cameron, M. A., Jacobson, M. Z., Naiman, A. D., Lele, S. K.  
2013; 40 (21): 5815-5820
  - **Fast acoustic scattering predictions with non-uniform potential flow effects** *JOURNAL OF THE BRAZILIAN SOCIETY OF MECHANICAL SCIENCES AND ENGINEERING*  
Wolf, W. R., Lele, S. K.  
2013; 35 (4): 407-418
  - **A mechanism for unsteady separation in over-expanded nozzle flow** *PHYSICS OF FLUIDS*  
Olson, B. J., Lele, S. K.  
2013; 25 (11)
  - **Breakdown mechanisms and heat transfer overshoot in hypersonic zero pressure gradient boundary layers** *JOURNAL OF FLUID MECHANICS*  
Franko, K. J., Lele, S. K.  
2013; 730: 491-532
  - **Flow physics and RANS modelling of oblique shock/turbulent boundary layer interaction** *JOURNAL OF FLUID MECHANICS*  
Morgan, B., Duraisamy, K., Nguyen, N., Kawai, S., Lele, S. K.  
2013; 729: 231-284
  - **Directional artificial fluid properties for compressible large-eddy simulation** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Olson, B. J., Lele, S. K.  
2013; 246: 207-220
  - **Turbulent kinetic energy spectra of solar convection from New Solar Telescope observations and realistic magnetohydrodynamic simulations** *PHYSICA SCRIPTA*  
Kitiashvili, I. N., Abramenko, V. I., Goode, P. R., Kosovichev, A. G., Lele, S. K., Mansour, N. N., Wray, A. A., Yurchyshyn, V. B.  
2013; T155
  - **UBIQUITOUS SOLAR ERUPTIONS DRIVEN BY MAGNETIZED VORTEX TUBES** *ASTROPHYSICAL JOURNAL*  
Kitiashvili, I. N., Kosovichev, A. G., Lele, S. K., Mansour, N. N., Wray, A. A.  
2013; 770 (1)
  - **Crackle Noise in Heated Supersonic Jets** *JOURNAL OF ENGINEERING FOR GAS TURBINES AND POWER-TRANSACTIONS OF THE ASME*  
Nichols, J. W., Lele, S. K., Ham, F. E., Martens, S., Spyropoulos, J. T.  
2013; 135 (5)
  - **Reynolds- and Mach-number effects in canonical shock-turbulence interaction** *JOURNAL OF FLUID MECHANICS*  
Larsson, J., Bermejo-Moreno, I., Lele, S. K.  
2013; 717: 293-321
  - **On the use of the Ffowcs Williams-Hawkins equation to predict far-field jet noise from large-eddy simulations** *INTERNATIONAL JOURNAL OF AEROACOUSTICS*  
Mendez, S., Shoeybi, M., Lele, S. K., Moin, P.  
2013; 12 (1-2): 1-20
  - **The effects of aircraft on climate and pollution. Part II: 20-year impacts of exhaust from all commercial aircraft worldwide treated individually at the subgrid scale** *FARADAY DISCUSSIONS*  
Jacobson, M. Z., Wilkerson, J. T., Naiman, A. D., Lele, S. K.  
2013; 165: 369-382
  - **The effects of aircraft on climate and pollution, Part II: 20-year impacts of exhaust from all commercial aircraft worldwide treated individually at the subgrid scale** *Faraday Discuss.*  
Jacobson, M., Z., Wilkerson, J., T., Naiman, A., D., Lele, S., K.  
2013

- **Breakdown mechanisms and heat transfer overshoot in hypersonic zero pressure gradient boundary layers** *J. Fluid Mech.*  
Franko, K., Lele, S., K.  
2013; 730: 491-532
- **Towards full-scale numerical simulations of travelling-wave thermoacoustic Stirling engines**  
Scalo, C., Lin, J., Lele, S., K., Hesselink, L.  
2013
- **Flow physics and RANS modeling of oblique shock/turbulent boundary layer interaction** *J. Fluid Mech.*  
Morgan, B., Duraisamy, K., Nguyen, N., Kawai, S., Lele, S., K.  
2013; 729: 231-284
- **Towards full-scale numerical simulations of travelling-wave thermoacoustic Stirling engines**  
Scalo, C., Lin, J., Lele, S., K., Hesselink, L.  
2013
- **Assessment of wall-modeled large-eddy simulation for supersonic compression ramp flows**  
Dawson, D., M., Lele, S., K., Bodart, J.  
2013
- **A probabilistic ice habit model for LES of contrails**  
Inamdar, A., R., Lele, S., K., Jacobson, M., Z.  
2013
- **Simulations of a normal shock train in a constant area duct using wall-modeled LES**  
Vane, Z., P., Lele, S., K.  
2013
- **A mechanism for unsteady separation in over-expanded nozzle flow** *Phys. Fluids.*  
Olson, B., J., Lele, S., K.  
2013; 25 (11): 110809
- **Effects of Mean Flow Convection, Quadrupole sources and vortex shedding on airfoil overall sound pressure level** *J. Sound and Vib., to appear.*  
Wolf, W., R., Azevedo, J., L. F., Lele, S., K.  
2013
- **Directional artificial fluid properties for compressible large-eddy simulations** *J. Comput. Phys.*  
Olson, B., J., Lele, S., K.  
2013; 246: 207-220
- **The source of crackle noise in heated supersonic jets**  
Nichols, J., W., Lele, S., K., Spyropoulos, J., T.  
2013
- **Nozzle wall modeling in unstructured large-eddy simulations for hot supersonic jet predictions**  
Bres, G., A., Ham, F., Nichols, J., W., Lele, S., K.  
2013
- **Ovarian Cancer, Version 3.2012 Featured Updates to the NCCN Guidelines** *JOURNAL OF THE NATIONAL COMPREHENSIVE CANCER NETWORK*  
Morgan, R. J., Alvarez, R. D., Armstrong, D. K., Burger, R. A., Castells, M., Chen, L., Copeland, L., Crispens, M. A., Gershenson, D., Gray, H., Hakam, A., Havrilesky, L. J., Johnston, et al  
2012; 10 (11): 1339-1349
- **Trailing-Edge Noise Predictions Using Compressible Large-Eddy Simulation and Acoustic Analogy** *AIAA JOURNAL*  
Wolf, W. R., Lele, S. K.  
2012; 50 (11): 2423-2434
- **Convective effects and the role of quadrupole sources for aerofoil aeroacoustics** *JOURNAL OF FLUID MECHANICS*

- 
- Wolf, W. R., Azevedo, J. L., Lele, S. K.  
2012; 708: 502-538
- **Interaction of a converging spherical shock wave with isotropic turbulence** *PHYSICS OF FLUIDS*  
Bhagatwala, A., Lele, S. K.  
2012; 24 (8)
  - **Vortex tubes of turbulent solar convection** *PHYSICA SCRIPTA*  
Kitiashvili, I. N., Kosovichev, A. G., Mansour, N. N., Lele, S. K., Wray, A. A.  
2012; 86 (1)
  - **Large-Eddy Simulations of Perfectly Expanded Supersonic Jets Using an Unstructured Solver** *48th AIAA Aerospace Sciences Meeting*  
Mendez, S., Shoeybi, M., Sharma, A., Ham, F. E., Lele, S. K., Moin, P.  
AMER INST AERONAUTICS ASTRONAUTICS.2012: 1103–18
  - **Investigation of bubble-bubble interaction and shock-reflection in homogeneous bubbly flow**  
Lee, J., Lele, S., K.  
2012
  - **CRACKLE NOISE IN HEATED SUPERSONIC JETS** *ASME Turbo Expo 2012*  
Nichols, J. W., Lele, S. K., Ham, F. E., Martens, S., Spyropoulos, J. T.  
AMER SOC MECHANICAL ENGINEERS.2012: 337–345
  - **Effects of Mean Flow Convection and Quadrupole Sources on Airfoil Trailing Edge Noise**  
Wolf, W., Azevedo, J. L., Lele, S.  
2012
  - **Interaction of converging spherical shock wave with isotropic turbulence** *Physics of Fluids*  
Bhagatwala, A., Lele, S., K.  
2012; 24 (8): 21
  - **Large-eddy simulation for supersonic rectangular jet noise prediction: effects of chevrons**  
Nichols, J., Lele, S., Moin, P., Ham, F., Brès, G., Bridges, J.  
2012
  - **Investigation of Noise Generated by a DU96 Airfoil**  
Wolf, W., Azevedo, J. L., Lele, S.  
2012
  - **Large-eddy and RANS simulations of normal shock train in a constant area isolator**  
Morgan, B., Duraisamy, K., Lele, S., K.  
2012
  - **Large-eddy simulation of perfectly expanded supersonic jets using unstructured solver** *AIAA J.*  
Mendez, S., Shoeybi, M., Sharma, A., Ham, F., E., Lele, S., K., Moin, P.  
2012; 50: 1103-1118
  - **Low Frequency Unsteadiness in Nozzle Flow Separation**  
Olson, B., Lele, S.  
2012
  - **Aeroacoustics of a supersonic rectangular jet: experiments and LES predictions**  
Nichols, J., W., Ham, F., Lele, S., K., Bridges, J., E.  
2012
  - **Quadrupole Noise in Turbulent Wake Interaction Problems**  
Yu, C., Wolf, W., Lele, S.  
2012
  - **Towards Best Practices for Jet Noise Predictions with Unstructured Large Eddy Simulations**  
Brès, G., Nichols, J., Lele, S., Ham, F.

2012

● **Crackle noise in heated supersonic jets**

Nichols, J. W., Lele, S. K., Ham, F. E., Marten, S., Spyropoulos, J., T.

2012

● **Crackle noise in heated supersonic jets** *J. Eng. Gas Turbines & Power, GTP-12-1155.*

Nichols, J. W., Lele, S. K., Ham, F. E., Martens, S., Spyropoulos, J., T.

2012

● **Unstructured Large Eddy Simulation of a Hot Supersonic Over-Expanded Jet with Chevrons**

Brès, G., Nichols, J., Lele, S., Ham, F., Schlinker, R., Reba, R.

2012

● **Directional artificial bulk viscosity for shock capturing on high aspect ratio grids** *Comput. Science & Discovery*

Olson, B. J., Lele, S. K.

2012; 5: 14008

● **Effects of heating on noise radiation from turbulent mixing layers with initially laminar and turbulent boundary layers**

Sharma, A., Lele, S. K.

2012

● **Wideband fast multipole boundary element method: Application to acoustic scattering from aerodynamic bodies** *INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS*

Wolf, W. R., Lele, S. K.

2011; 67 (12): 2108-2129

● **Non-normal global modes of high-speed jets** *INTERNATIONAL JOURNAL OF SPRAY AND COMBUSTION DYNAMICS*

Nichols, J. W., Lele, S. K.

2011; 3 (4): 285-301

● **Large eddy simulations of contrail development: Sensitivity to initial and ambient conditions over first twenty minutes** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*

Naiman, A. D., Lele, S. K., Jacobson, M. Z.

2011; 116

● **Nonlinear effects in the combined Rayleigh-Taylor/Kelvin-Helmholtz instability** *PHYSICS OF FLUIDS*

Olson, B. J., Larsson, J., Lele, S. K., Cook, A. W.

2011; 23 (11)

● **Vertical mixing of commercial aviation emissions from cruise altitude to the surface** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*

Whitt, D. B., Jacobson, M. Z., Wilkerson, J. T., Naiman, A. D., Lele, S. K.

2011; 116

● **Aeroacoustic Integrals Accelerated by Fast Multipole Method** *AIAA JOURNAL*

Wolf, W. R., Lele, S. K.

2011; 49 (7): 1466-1477

● **The effects of aircraft on climate and pollution. Part I: Numerical methods for treating the subgrid evolution of discrete size- and composition-resolved contrails from all commercial flights worldwide** *JOURNAL OF COMPUTATIONAL PHYSICS*

Jacobson, M. Z., Wilkerson, J. T., Naiman, A. D., Lele, S. K.

2011; 230 (12): 5115-5132

● **Sound generation due to unsteady motion of a cylinder** *PHYSICS OF FLUIDS*

Sharma, A., Lele, S. K.

2011; 23 (4)

● **Improving Low-Frequency Characteristics of Recycling/Rescaling Inflow Turbulence Generation** *AIAA JOURNAL*

Morgan, B., Larsson, J., Kawai, S., Lele, S. K.

2011; 49 (3): 582-597

- **Interaction of a Taylor blast wave with isotropic turbulence** *PHYSICS OF FLUIDS*  
Bhagatwala, A., Lele, S. K.  
2011; 23 (3)
- **Two-dimensional viscous flow simulation of a shock accelerated heavy gas cylinder** *PHYSICS OF FLUIDS*  
Shankar, S. K., Kawai, S., Lele, S. K.  
2011; 23 (2)
- **Global modes and transient response of a cold supersonic jet** *JOURNAL OF FLUID MECHANICS*  
Nichols, J. W., Lele, S. K.  
2011; 669: 225-241
- **Epithelial Ovarian Cancer** *JOURNAL OF THE NATIONAL COMPREHENSIVE CANCER NETWORK*  
Morgan, R. J., Alvarez, R. D., Armstrong, D. K., Boston, B., Burger, R. A., Chen, L., Copeland, L., Crispens, M. A., Gershenson, D., Gray, H. J., Grigsby, P. W., Hakam, A., Havrilesky, et al  
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