Dr. Sparsh Sharma, Curriculum Vitae

Chair of Numerical Flow and Gas Dynamics, BTU
sparsh.sharma@b-tu.de
https://www.b-tu.de/fg-stroemungsmodellierung/

Technical Acoustics Department, TUB
sparsh.sharma@campus.tu-berlin.de
https://www.akustik.tu-berlin.de/menue/home/

Research Interests

Dr. Sparsh Sharma is a postdoc fellow in the group of Prof. Heiko Schmidt at the Chair of Numerical Flow and Gas Dynamics in Cottbus, Germany. Sparsh's research focuses on the numerical simulations with modeling to study fundamental unsteady flow phenomena, turbulence, flow instabilities, and flow-generated sound. Besides idealized theoretical work, Sparsh applies high-resolution large eddy simulations with one-dimension turbulence as subgrid scale model. Recently, Sparsh also started to use emulators, a machine learning approach, to explore the physics of turbulent jets.

Education

2016 — 2019	Ph.D. in Aeroacoustics (*summa cum laude*), Faculty of Mechanical and Electrical Engineering, Technical University Berlin and Brandenburg Technical University, Germany. Committee: Prof. Dr.-Ing. Ennes Sarradj, Prof. Dr.-Ing. Heiko Schmidt, Prof. Dr. rer. Nat. habil Uwe Harlander.
2014 — 2016	MS in Aerospace and Mechanical Engineering (9.5/10), Faculty of Aeromechanics, Moscow Institute of Physics and Technology, Moscow.
2010 — 2014	B.Tech. in Mechanical Engineering with honors in Automotive Engineering (7.7/10), Vellore Institute of Technology, Vellore.

Awards

2020	Best thesis award 2020 of the Brandenburg Technical University, Germany.
2019	Young Scientist Award of the German Society for Acoustics: DEGA (Deutsche Gesellschaft für Akustik).
2018	Research grant of Graduate Research School, BTU Cottbus, Germany to conduct independent research on wind turbines.
2014	Revathy Iyer Memorial Award SAE (Society of Automotive Engineers) for the best thesis and paper.
2013	Best design at NASA subsonic ultra-green aircraft research for N+3 goals competition

Research and Work Experiences

since 01/2020	Postdoc fellow (group of Prof. Dr. Heiko Schmidt), Chair of Numerical Flow and Gas Dynamics, BTU Cottbus, Germany.
11/2016—11/2019	Research associate (group of Prof. Dr. Ennes Sarradj), Chair of Technical Acoustics, Technical University Berlin, Germany.
01/2017—06/2017	Research associate, Rolls-Royce Aeroengines, Berlin, Germany.
11/2014—02/2016	Student research assistant (group of Prof. Dr. Frank Janser), Chair of Aerospace Engineering, FH Aachen, Germany.

Teaching

Lectures	Engineering Acoustics (advanced postgraduate, jointly held with Dr. Thomas Geyer, Brandenburg Technical University): winter term 2020/21, summer term 2019-20.
Workshops	User workshop on OpenFOAM with acoustic analogies (jointly held with Dr. Thomas Geyer): 20—24 December 2020, Cottbus, Germany.
Tutorials	Teaching assistant for the introductory courses on Engineering Acoustics and Turbulence Modelling (corresponding lectures by Dr. T. Geyer and Prof. H. Schmidt): summer term 2019-20.
Co-Supervised Theses	2020: Baran Calisci, Numerical modelling of vortex shedding noise from cylinders in subcritical regime (Master's Thesis, Brandenburg Technical Universität, Cottbus). 2019: Julia Genssler, Application of porous materials in noise mitigation from landing gears (Master's Thesis, Brandenburg Technical Universität, Cottbus). 2018: Phillip Hall, Parametric study of leading-edge noise in wind turbines (Bachelor's Thesis, Brandenburg Technical Universität, Cottbus). 2021: Sanjay Kumar, Influence of subgrid scale modelling on jet noise (Master's Thesis, Brandenburg Technical Universität, Cottbus).

Professional Activities and Memberships

Reviewer for journals	Journal of Wind Engineering & Industrial Aerodynamics, **Impact factor: 2.74** International Journal of Heat and Fluid flow, **Impact factor: 2.073** Applied Acoustics, **Impact factor: 2.3** Journal of Aerospace Engineering, **Impact factor: 1.4**
Member	American Institute of Aeronautics and Astronautics (AIAA) Deutsche Gesellschaft für Akustik (DEGA) Society of Automotive Engineers (SAE)

Publications and Academic Work

Peer-Reviewed Articles

S. Sharma, E. Sarradj, H. Schmidt, Stochastic modelling of leading-edge noise in time-domain using vortex particles, Journal of Sound and Vibration. 488 (2020) 115656. [Link]

S. Sharma, E. Sarradj, Two-dimensional isotropic turbulent inflow conditions for vortex particle method, Physical Review Fluids. 4 (2019) 022701. [Link]

S. Sharma, T.F. Geyer, J. Giesler, Effect of geometric parameters on the noise generated by rod-airfoil configuration, Applied Acoustics (2020). [Link]

S. Sharma, M. Klein, H. Schmidt, E. Sarradj, On a lower-order framework for jet noise prediction based on one-dimensional turbulence, Journal of Aerospace Engineering (2020). [Link]

G. Bindal, **S. Sharma**, F. Janser, E. Neu, Detailed Analysis of Variables Affecting Wing Kinematics of Bat Flight, SAE International Journal of Aerospace. 6 (2013) 2013-01–9003. [Link]

S. Sharma, Stochastic modelling of leading-edge noise in time-domain using vortex particles, Brandenburg Technical University Cottbus-Senftenberg, 2020. [Link]

Peer-Reviewed Conference Articles

S. Sharma, T.F. Geyer, E. Sarradj, H. Schmidt, Numerical investigation of noise generation by rod-airfoil configuration using DES (SU2) and the FW-H analogy, in: 25th AIAA/CEAS Aeroacoustics Conference, American Institute of Aeronautics and Astronautics, Reston, Virginia, 2019: pp. 1–17. [Link]

S. Sharma, T. Geyer, E. Sarradj, Time Domain Boundary Element Method for the Leading-Edge Noise subjected to Linear Vorticity, INTER-NOISE and NOISE-CON Congress and Conference Proceedings, InterNoise 18. (2018) 10. [Link]

S. Sharma, E. Sarradj, Fluctuating Inflow Condition for Time-Domain Boundary Element Method for Airfoil-Turbulence Interaction Noise, in: ISUAAAT15 2018, Oxford, UK, 2018. [Link]

T.F. Geyer, **S. Sharma**, E. Sarradj, Detached Eddy Simulation of the Flow Noise Generation of Cylinders with Porous Cover, in: 2018 AIAA/CEAS Aeroacoustics Conference, American Institute of Aeronautics and Astronautics, Reston, Virginia, 2018. [Link]

S. Sharma, E. Sarradj, H. Schmidt, Low-Fidelity Stochastic Approach for Airfoil-Turbulence Interaction Noise, in: Advances in Acoustics - DAGA 2018, 44th Annual Conference on Acoustics, German Society for Acoustics, Berlin, Munich, 2018: pp. 1184–1187. [Link]

S. Sharma, E. Sarradj, H. Schmidt, Unsteady Lift due to the Interaction of Incidence Turbulence with an Airfoil, in: Fortschritte Der Akustik - DAGA 2017 43. Deutsche Jahrestagung Für Akustik : 06.-09. März 2017 in Kiel, Kiel, Germany, 2017: pp. 1489–1490. [Link]

B. Dhingra, **S. Sharma**, K. Vora, B. Ashok, CFD modeling of advanced swirl technique at inlet-runner for diesel engine, SAE Technical Papers. (2015). [Link]

S. Sharma, G. Bindal, Computational analysis of 3D unsteady flow over flapping wing, SAE Technical Papers. 7 (2013). [Link]

In Preparation, Submitted, or Under Review

S. Sharma, M. Klein, H. Schmidt, E. Sarradj, Stochastic map-based turbulence modelling for turbulent jet noise, to be submitted

S. Sharma, M. Klein, H. Schmidt, E. Sarradj, Towards a reduced-order model to investigate jet noise using one-dimensional turbulence (ODT), submitted to AIAA

S. Sharma, T.F. Geyer, E. Sarradj, H. Schmidt, Experimental validation of a lower-order model for leading-edge noise based on vortex method, submitted to AIAA

Presentations held

S. Sharma, E. Sarradj, Fluctuating Inflow Condition for Time-Domain Boundary Element Method for Airfoil-Turbulence Interaction Noise, in: ISUAAAT15 2018, Oxford, UK, 2018

S. Sharma, E. Sarradj, Fluctuating Inflow Condition for Time-Domain Boundary Element Method for Airfoil-Turbulence Interaction Noise, XNOISE-2017, TU Vienna, Austria