Zhengzhong Sun
School of Physics, Engineering & Computer Science
Department of Engineering and Technology
Type of address: Postal address.
University of Hertfordshire, Hatfield, Hertfordshire
United Kingdom
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Research interests

Dr Sun has received funding from EPSRC and Royal Society. He has ample experiences on experimental aerodynamics and flow control.

Qualifications

Aerospace Engineering, PhD, Experimental and numerical investigation of micro-ramp wakes, TECHNISCHE UNIVERSITEIT DELFT
Award Date: 10 Jan 2014

Employment

School of Physics, Engineering &Computer Science
University of Hertfordshire
10 Jan 2022 → present

Department of Engineering and Technology
University of Hertfordshire
10 Jan 2022 → present

Senior Lecturer
City, University of London
United Kingdom
4 Jan 2015 → 9 Jan 2022

Post-Doctoral Associate
Univ Minnesota, University of Minnesota Twin Cities
United States
1 Oct 2013 → 30 Dec 2014

Research outputs

Entropy Generation of Secondary Flow in a Turning Passage with Different Boundary Layer Characteristics
Xi, Y., Peng, X., Xia, H., Sun, Z., Zhang, Q. & Leonov, S. (ed.), 23 Sept 2022, (E-pub ahead of print) In: Aerospace. 9, 10, 14 p., 539.

Experimental investigation of the transonic shock-wave/boundary-layer interaction over a shock-generation bump
Sun, Z., Miao, X. & Jagadeesh, C., 2 Oct 2020, In: Physics of Fluids. 32, 10, 12 p., 106102.

Effect of the streamwise pulsed arc discharge array on shock wave/boundary layer interaction control
Tang, M., Wu, Y., Guo, S., Sun, Z. & Luo, Z., 1 Jul 2020, In: Physics of Fluids. 32, 7, 12 p., 076104.

Experimental research on the shock wave control based on one power supply driven plasma synthetic jet actuator array
Zhang, Z., Zhang, X., Wu, Y., Jia, M., Jin, D., Sun, Z. & Li, Y., Jun 2020, In: Acta Astronautics. 171, p. 359 10 p.

Shock-Wave/Boundary-Layer Interactions at Compression Ramps Studied by High-Speed Schlieren
Sun, Z., Gan, T. & Wu, Y., Apr 2020, In: AIAA Journal. 58, 4

Characterization of transverse plasma jet and its effects on ramp induced separation
Tang, M., Wu, Y., Wang, H., Guo, S., Sun, Z. & Sheng, J., 1 Dec 2018, In: Experimental Thermal and Fluid Science. 99, p. 584-594 11 p.

Improving purge air cooling effectiveness by engineered end-wall surface structures—Part II: turbine cascade
Miao, X., Zhang, Q., Atkin, C., Sun, Z. & Li, Y., 1 Sept 2018, In: ASME Journal of Turbomachinery. 140, 9, 11 p., 091002.

Improving purge air cooling effectiveness by engineered end-wall surface structures—part I: duct flow
Miao, X., Zhang, Q., Atkin, C., Sun, Z. & Li, Y., 1 Sept 2018, In: ASME Journal of Turbomachinery. 140, 9, 12 p., 091001.

Analytic Model and the Influence of Actuator Number on the Performance of Plasma Synthetic Jet Actuator Array
Huang, S., Zhang, Z., Song, H., Wu, Y., Sun, Z. & Li, YI., Sept 2018, In: Applied Sciences. 8, 9, 1534.

Converged high-speed schlieren for shock wave boundary layer interaction study
Sun, Z., Jul 2018, p. 16-19.

Shock wave boundary layer interaction controlled by surface arc plasma actuators
Gan, T., Wu, Y., Sun, Z., Jin, D., Song, H. & Jia, M., 2018, In: Physics of Fluids. 30, 5, 055107.

MHD-RLC discharge model and the efficiency characteristics of plasma synthetic jet actuator
Zhang, Z., Wu, Y., Jia, M., Song, H., Sun, Z. & Li, Y., 1 Jul 2017, In: Sensors and Actuators A: Physical. 261, 1, p. 75-84 10 p.

Numerical simulation of transitional flow on a wind turbine airfoil with RANS-based transition model
Zhang, Y., Sun, Z., van Zuijlen, A. & van Bussel, G., 8 Jun 2017, In: Journal of Turbulence (JOT). 18, 9, p. 879-898 10 p.

Modeling and optimization of the multichannel spark discharge
Zhang, Z., Wu, Y., Jia, M., Song, H., Sun, Z. & Li, Y., 1 Jun 2017, In: Chinese Physics B (CPB). 26, 065204.

Investigation of the vortex ring transition using scanning Tomo-PIV
Sun, Z. & Bruecker, C., 27 Mar 2017, In: Experiments in Fluids. 58, 36.

Experimental research on multichannel discharge circuit and multi-electrode plasma synthetic jet actuator
Zhang, Z., Wu, Y., Song, H., Jia, M., Zong, H., Sun, Z. & Li, Y., 24 Mar 2017, In: Journal of Physics D: Applied Physics. 50 , 16, 165205.

The multichannel discharge plasma synthetic jet actuator
Zhang, Z., Wu, Y., Jia, M., Song, H., Zong, H., Sun, Z. & Li, Y., 1 Jan 2017, In: Sensors and Actuators A: Physical. 253, p. 112-117 6 p.

End-Wall Secondary Flow Control Using Engineered Residual Surface Structure
Miao, X., Zhang, Q., Atkin, C. & Sun, Z., 20 Sept 2016.

Micro vortex generators for boundary layer control: Principles and applications
Sun, Z., 2015, In: International Journal of Flow Control. 7, 1-2, p. 67-86

Numerical and experimental investigations of the supersonic microramp wake
Sun, Z., Scarano, F., van Oudheusden, B., Schrijer, F., Yan, Y. & Liu, C., 1 Jul 2014, In: AIAA Journal. 52, 7, p. 1518-1527

LES investigation into the generation of momentum deficits in the supersonic wake of a micro-ramp
Wang, X., Yan, Y., Sun, Z. & Liu, C., 1 Apr 2014, In: Journal of Mechanical Science and Technology. 28, 4, p. 1327-1337

Decay of the supersonic turbulent wakes from micro-ramps
Sun, Z., Schrijer, F., Scarano, F. & van Oudheusden, B., 24 Feb 2014, In: Physics of Fluids. 26, 2, 025115.

The Vortical Structures in the Rear Separation and Wake Produced by a Supersonic Micro-Ramp
Wang, X., Yan, Y., Sun, Z. & Liu, C., 2014, In: Flow, Turbulence and Combustion. 93, 1, p. 25-36 10 p.

Numerical and Experimental Investigations of the Flow behind a Supersonic Micro-Ramp
Sun, Z., Scarano, F., van Oudheusden, B., Schrijer, F., Wang, X., Yan, Y. & Liu, C., 5 Jan 2013.

The Vortical Structures in the Rear Separation and Wake Produced by a Supersonic Micro-Ramp
Sun, Z., Liu, C., Wang, X. & Yan, Y., 5 Jan 2013.

The three-dimensional flow organization past a micro-ramp in a supersonic boundary layer
Sun, Z., Schrijer, F., Scarano, F. & van Oudheusden, B., 16 May 2012, In: Physics of Fluids. 055105.

PIV Investigation of the 3D Instantaneous Flow Organization behind a Micro-ramp in a Supersonic Boundary Layer
Sun, Z., Schrijer, F., Scarano, F. & van Oudheusden, B., 2012, *28th International Symposium on Shock Waves.* Kontis, K. (ed.). Berlin, Heidelberg, Vol. 2. p. 417-423

Projects

EPSRC First Grant - Plasma Synthetic Jet Actuators for the Control of Transonic Shock Wave Boundary Layer Interaction
Sun, Z.
1/03/18 → 31/08/19

Royal Society International Exchange Grant-IE150612: Development of novel plasma synthetic jet actuators
Sun, Z.
1/02/16 → 31/01/18

Royal Society Research Grant: Understanding transonic laminar-turbulence transition through converging high-speed schlieren
Sun, Z.
1/04/18 → 31/03/19

UK Fluid Network Short Research Visit Fund: Optimal mixing, heat and mass transfer in turbulent puffs
Sun, Z.
1/05/18 → 31/05/18