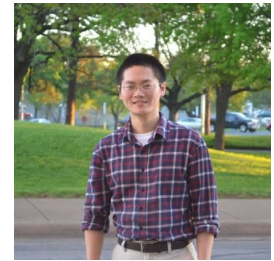


Zhengzhong Sun  
School of Physics, Engineering & Computer Science  
Department of Engineering and Technology  
**Type of address: Postal address.**  
University of Hertfordshire, Hatfield, Hertfordshire  
United Kingdom  
**Email:** z.sun@herts.ac.uk



## 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 Astronautica. 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, Y., 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