

# Hongtao Zhong

Postdoc Stanford Plasma Physics Lab hongtaoz@stanford.edu Homepage

## EDUCATION

### PRINCETON UNIVERSITY

PH.D. IN MECHANICAL AND  
AEROSPACE ENGINEERING  
Sept 2017 - Oct 2022 Princeton, NJ  
GPA: 3.96 / 4.0  
Advisor: Prof. Yiguang Ju  
& Dr. Mikhail Shneider

### TSINGHUA UNIVERSITY

B.E. IN ENERGY AND POWER  
ENGINEERING, B.EC. IN ECONOMICS  
Sept 2013 - Jun 2017  
Beijing, CN

## AWARDS

2021 DISTINGUISHED PAPER  
AWARD AT 38<sup>TH</sup> INTERNATIONAL  
SYMPOSIUM ON COMBUSTION  
2021 GRADUATE SCHOOL  
TEACHING AWARD  
2020 SEAS AWARD FOR  
EXCELLENCE  
2020 BRITT AND ELI HARARI  
FELLOWSHIP  
2018 SAYRE AWARD  
2017 KING PEH KWONG FELLOWSHIP

## EXPERIENCE

### OHIO STATE UNIVERSITY

Aug 2021 | Columbus, US  
Visiting Student

### UNIVERSITY OF CAMBRIDGE

Jul 2016 - Aug 2016 | Cambridge, UK  
Research Assistant

## ACTIVITIES

### CHINESE LUNCH EVENT

May 2018 - May 2019 | Princeton  
Organized weekly Chinese Lunch Event  
(1, 600 person-times participation).

### ALMGREN MEMORIAL MAYDAY RUNNING RACE

May, 2019 | Princeton  
Participated as a member of Princeton  
ACSSPU Team (Ranked 4 / 8)

## RESEARCH

### PLASMA APPLICATIONS IN SUSTAINABILITY

### LASER DIAGNOSTICS AND KINETIC IN PLASMA-ASSISTED GAS CONVERSION

## SELECTED PUBLICATIONS

- [1] Yong, T., **Zhong, H.**, ... & Cappelli, M. "High-Pressure CO<sub>2</sub> Dissociation with Nanosecond Pulsed Discharges". *Plasma Sources Science and Technology* 32.11 (2023): 115012.
- [2] Xie, H., Liu, N., Zhang, Q., **Zhong, H.**, ... , & Hu, L. "A Stable Atmospheric-Pressure Plasma for Extreme-Temperature Synthesis". *Nature* 623.7989 (2023): 964-971.
- [3] **Zhong, H.**, Shneider, M. N., Mao, X., & Ju, Y. "Dynamics and Chemical Mode Analysis of Plasma Thermal-Chemical Instability". *Plasma Sources Science and Technology* 30.3 (2021): 035002.
- [4] **Zhong, H.**, Yan, C., Teng, C. C., Chen, T., Wysocki, G., & Ju, Y. "Kinetic Studies of Excited Singlet Oxygen Atom O(<sup>1</sup>D) Reactions with Ethanol". *International Journal of Chemical Kinetics* 53.6 (2021): 688-701.
- [5] **Zhong, H.**, Shneider, M. N., Mokrov, M. S., & Ju, Y. "Thermal-Chemical Instability of Weakly Ionized Plasma in a Reactive Flow". *Journal of Physics D: Applied Physics* 52.48 (2019): 484001.
- [6] **Zhong, H.**, Teng, C. C., Yan, C., Ma, G., Wysocki, G., & Ju, Y. "Kinetic Study of Reaction C<sub>2</sub>H<sub>5</sub> + HO<sub>2</sub> in a Photolysis Reactor with Time-Resolved Faraday Rotation Spectroscopy". *Proceedings of the Combustion Institute, Proceedings of the Combustion Institute* 38.1 (2021): 871-880.
- [7] **Zhong, H.**, Mao, X., Rousso, A., Patrick, C., Yan, C., ... & Ju, Y. "Kinetic Study of Plasma-assisted N-dodecane/O<sub>2</sub>/N<sub>2</sub> Pyrolysis and Oxidation in a Nanosecond-pulsed Discharge". *Proceedings of the Combustion Institute* 38.4 (2021): 6521-6531.

## SELECTED PRESENTATIONS

- [1] "Dynamic Contraction of the Positive Column of a Self-sustained Glow Discharge in a Reacting Flow". Oral. 72<sup>nd</sup> Annual Gaseous Electronics Conference, College Station, TX (11/2019)
- [2] "An Analysis of a New Thermal-Chemical Mechanism for Plasma Combustion Instability in Plasma Assisted Ignition". Oral. 11<sup>th</sup> US National Combustion Meeting, Pasadena, CA (03/2019)
- [3] "Kinetic Studies of Excited Singlet Oxygen Atoms O(<sup>1</sup>D) Reactions with Fuels in Plasma Assisted Combustion". Oral. AIAA Scitech 2019 Forum, San Diego, CA (01/2019)