Sang Hee Won

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Education

Ph. D. in Mechanical and Aerospace Engineering, Seoul National University (Mar. 2000 – Feb. 2004)
M. S. in Mechanical Engineering, Seoul National University. (Mar. 1998 – Feb. 2000)
B. S. in Mechanical Engineering, Seoul National University. (Mar. 1993 – Feb. 1998)

Research Interests

Experimental and numerical energy conversion physics, including experimental characterization of chemical kinetic behaviors for conventional and alternative fuels, development of predictive chemical kinetic models for real fuel combustion, plasma-assisted combustion, fundamental combustion physics, and quantitative laser diagnostic techniques.

Professional Research Experience

Professional Specialist (July 2015 – Present), Princeton University
Associate Research Scholar (Sept. 2009 – Jun. 2015), Princeton University
Postdoctoral Research Associate (Aug. 2007 – Aug. 2009), Princeton University
Working on flame extinction and propagation for higher hydrocarbon fuels as surrogate fuels for jet fuels, turbulent flame propagation and structure, and plasma assisted combustion.

1. Evaluation of combustion properties for real liquid transportation fuels
   A. MURI project to develop experimental and computational surrogate models for jet fuels (AFOSR)
   B. CEFRC in Princeton University: Bio-fuel and Bio-Petroleum Blends (DOE)
   C. Combustion property characterization of alternative jet fuels (AFOSR, AFRL)
   D. Development of detailed, reduced, and CFD-compact kinetic models for jet fuels (NASA)
   E. Development of certification process for marine diesel and heavy residual oils (KR)
2. Plasma- and electric field-assisted combustion in counter flow and jet burners
   A. Flame speed enhancement by ozone and singlet delta oxygen (AFOSR)
   B. Direct ignition by in-situ non-equilibrium plasma (AFOSR)
   C. Dynamics and chemistry of cool flames for both combustion and chemical processing (DOE)
3. Experimental investigations of turbulence-chemistry interaction
   A. Flow reactor-assisted turbulent burner for premixed and edge flames (AFOSR)
   B. NO_x formation under turbulent mixing conditions (Siemens)

Funding

1. Co-I (with Y. Ju), AFOSR, "Studies of Turbulent Flame Propagation and Chemistry Interaction at Elevated Temperature and Large Reynolds Numbers," FA9550-12-1-0140, $330,000, 4/1/2012-3/31/2015.
2. Co-PI (with F.L. Dryer), Siemens Power Generation, "Kinetics for Syngas, High Hydrogen Content, and Natural Gas Fuels at Elevated Pressures and Temperatures for Gas Turbine Applications: NOx Experimental Validation Database and Model Verification," $186,200, 1/1/2014-2/28/2015.
3. PI, Korea Register of Shipping (KR), "Experimental evaluation of fuel chemical and physical property impacts on spray injection/ignition processes," $38,000, 5/1/2014-7/31/2014.
4. Co-PI (with F.L. Dryer), NASA SBIR Phase I, "Compact Kinetic Mechanisms for Petroleum-Derived and Alternative Aviation Fuels," $36,000, 6/1/2014-11/30/2014.
5. Co-PI (with F.L. Dryer), AFRL, "Characterization of Global Combustion Behaviors of Jet Fuels and Experimental Studies on Jet Fuel Surrogate Components," $400,000, 10/29/2014–9/30/2016.
6. Co-PI (with F.L. Dryer), NASA SBIR Phase II, "Compact Kinetic Mechanisms for Petroleum-Derived and Alternative Aviation Fuels," $300,000, 5/1/2015-4/30/2017.
7. Co-PI (with F.L. Dryer), Infineum, "IQT Measurements for Oil," $100,000, 7/1/2015-6/30/2016.
8. PI, ADD/Sejong University, "Research on Characterization of Fuel Combustion Property for Aviation Fuels," $160,000, 10/15/2015-10/14/2018.

Post-Doctoral Researcher (June. 2006 – July. 2007), Korea Institute of Science and Technology (KIST).
Worked on leakage safety for high pressure hydrogen-charged fuel vessels and a micro-combustor for fuel reforming.

1. Hydrogen fuel storage safety, diffusion and transport characteristics, ignition and flame propagation
2. Micro-Combustor for fuel reforming/chemical processing and SOFC startup

Post-Doctoral Researcher (Mar. 2004 – May. 2006), Seoul National University.
Worked on flame stabilization, flame speed enhancement with electric field, and laser diagnostics.

1. Flame stabilization and propagation speed of edge flames
2. Interaction between flames and electric fields/plasma
3. Microgravity combustion experiments of edge flame propagation and stabilization
4. Multi-point laser induced ignition with cavity for SI engine
5. Development of combustor for clothes drying machine (Samsung)

Ph. D. Course (Mar. 2000 – Feb. 2004), Seoul National University, Seoul, Korea
Dissertation: Experimental Study on the Stabilization and Oscillation of Lifted Flame in Coflow Jets. (Advisor: Prof. Suk Ho Chung)

1. Lifted flames in coflow jets, studies of flame stabilization mechanisms in coflow jets through experiments and theoretical prediction for both propane and methane fuels

2. Flame oscillations, investigated buoyancy-driven instability of lifted flames
3. Microgravity experiment, verifying buoyancy effects on flame stabilization
4. Laser Diagnostics; PLIF techniques for OH, CH, NO, and PAH radicals, Rayleigh scattering for concentration and temperature field, LII for soot, CARS for temperature measuring, etc. with Nd:YAG and Dye/OPO lasers

M. S. Course (Mar. 1998 – Feb. 2000), Seoul National University, Seoul, Korea
Thesis: Lifted Flame Stabilization in Developing and Developed Regions of Coflow Jets for Highly Diluted Propane. (Advisor: Prof. Suk Ho Chung)

Other Professional Experience

- Over 100 publications in refereed journals and conference papers (7 invited talks), 3 patents.
- Citation index over 2000, with a Hirsch h-index of 27 (Google scholar).
- Referee for scientific journals, including Combustion and Flame, Proceedings of the Combustion Institute, IEEE Transactions on Plasma Science, Energy and Fuels, Fuel, J. AIAA, etc.
- Memberships: The Combustion Institute, American Institute of Aeronautics and Astronautics.

Invited Talks

7. S. H. Won, "Near-Limit Flame Dynamics Governed by Combustion Chemistry," April 12, 2016, Texas A&M University.
6. **S. H. Won**, "Flame Dynamics Governed by Combustion Chemistry of Real Fuels," February 18, 2016, University of South Carolina.
5. **S. H. Won**, B. E. Brumfield, "Experiments on Low-Temperature Combustion: Development of a Stabilized Cool Flame Platform and a Faraday Rotation Spectroscopy Diagnostic for In Situ Measurement of HOx Radicals," The 2nd International Workshop on Flame Chemistry, August 2-3, 2014, San Francisco, USA.
4. **S. H. Won,** "Toward Complete Understanding of "Real Fuel" Combustion," April 21, 2014, University of South Carolina.
3. **S. H. Won**, "Development of Detailed and Reduced Kinetic Models for Real Jet Fuels: Challenges and Opportunities," 52nd AIAA Aerospace and Science Meeting, January 13-17, 2014, National Harbor, Maryland, USA
2. **S. H. Won**, "Cost Effective Methodologies to Evaluate Combustion Characteristics from Fuel Properties," November 19, 2013, Korea Register of Shipping, Seoul, Korea.
1. Y. Ju, **S. H. Won**, Z. Chen, "Laminar Flames and the Role of Chemistry and Transport," The 1st International Workshop on Flame Chemistry, July 28-29, 2012, Warsaw, Poland.

Awards

3. Distinguished Paper Award on Laminar Flame by 35th International Symposium on Combustion, 2014 for "Self-Sustaining n-Heptane Cool Diffusion Flames Activated by Ozone."
2. Distinguished Paper Award on New Technology by 33rd International Symposium on Combustion,

2010 for "Effects of Non-Equilibrium Plasma Discharge on Counterflow Diffusion Flame Extinction."

1. Bronze Prize from 8th Samsung Humantech Paper Awards, 2001 for "Normal and Micro Gravity Experiment of Oscillating Lifted Flames in Coflow."

Patents

3. "A Measurement Process for the Determination of the Mixture Averaged Molecular Weight of Complex Mixtures," Provisional Patent Application (#61/601,347).
2. "Clothes Drying Machine," EP patent, 1710344, 2006/10/11.
1. "Alternating Current High Voltage Adoptive Combustion System for increasing a Flame Stabilization Region," Korean Patent, registration number: 10-0713708, 2007. 4.25.

Journal Publications

54. J. Santner, **S. H. Won**, Y. Ju, "Chemistry and Transport Effects on Critical Flame Initiation Radius for Alkanes and Aromatic Fuels," *Proc. Combust. Inst*. 36 (2016), *accepted*.
53. C. B. Reuter, **S. H. Won**, Y. Ju, "Flame Structure and Ignition Limit of Partially Premixed Cool Flames in a Counterflow Burner," *Proc. Combust. Inst*. 36 (2016), *accepted*.
52. C. H. Sohn, H. S. Han, C. B. Reuter, Y. Ju, **S. H. Won**, "Thermo-Kinetic Dynamics of Near-Limit Cool Diffusion Flames," *Proc. Combust. Inst*. 36 (2016), *accepted*.
51. B. Windom, **S. H. Won**, C. B. Reuter, B. Jiang, Y. Ju, S. Hammack, T. Ombrello, C. Carter, "Study of Ignition Chemistry on Turbulent Premixed Flames of n-Heptane/Air by Using a Reactor Assisted Turbulent Slot Burner," *Combust. Flame* 169 (2016) 19-29.
50. C. B. Reuter, **S. H. Won**, Y. Ju, "Experimental Study of the Dynamics and Structure of Self-Sustaining Premixed Cool Flames Using a Counterflow Burner," *Combust. Flame* 166 (2016) 125-132.
49. **S. H. Won**, F. M. Haas, A. Tekawade, G. Kosiba, M. A. Oehlschlaeger, S. Dooley, F. L. Dryer, "Combustion Characteristics of C4 iso-Alkane Oligomers: Experimental Characterization of iso-Dodecane as a Jet Fuel Surrogate Component," *Combust. Flame* 165 (2015) 137-143.
48. **S. H. Won**, P. S. Veloo, S. Dooley, J. Santner, F. M. Haas, Y. Ju, F. L. Dryer, "Predicting the Global Combustion Behaviors of Petroleum-Derived and Alternative Jet Fuels by Simple Fuel Property Measurements," *Fuel* 168 (2015) 34-46.
47. Y. Ju, C. B. Reuter, **S. H. Won**, "Numerical Simulations of Premixed Cool Flames of Dimethyl Ether/Oxygen Mixtures," *Combust. Flame* 162 (2015) 3580-3588.
46. J. K. Lefkowitz, P. Guo, T. Ombrello, **S. H. Won**, C. A. Stevens, J. L. Hoke, F. Schauer, Y. Ju, "Schlieren Imaging and Pulsed Detonation Engine Testing of Ignition by a Nanosecond Repetitively Pulsed Discharge," *Combust. Flame* 162 (2015) 2496-2507.
45. C. H. Sohn, J. W. Son, **S. H. Won**, Y. Ju, "Computational Studies of Diffusion Cool Flame Structures of n-Heptane with/without Ozone Sensitization with a Reduced Chemistry," *J. Mech. Sci. Technol*. 29(3) (2015) 1297-1305.
44. **S. H. Won**, B. Jiang, P. Diévart, C. H. Sohn, Y. Ju, "Self-Sustaining n-Heptane Cool Diffusion Flames Activated by Ozone," *Proc. Combust. Inst*. 35(1) (2015) 881-888.

43. W. Sun, **S. H. Won**, X. Gou, Y. Ju, "Multi-Scale Modeling of Dynamics and Ignition to Flame Transition of High Pressure Stratified n-Heptane/Toluene Mixture," *Proc. Combust. Inst*. 35(1) (2015) 1049-10056.
42. S. Dooley, J. Heyne, **S. H. Won**, P. Diévart, Y. Ju, F. L. Dryer, "Importance of a Cycloalkane Functionality in the Oxidation of a Real Fuel," *Energy Fuels* 28(12) (2014) 7649-7661.
41. W. Sun, **S. H. Won**, Y. Ju, "In Situ Plasma Activated Low Temperature Chemistry and the S-Curve Transition in DME/Oxygen/Helium Mixture," *Combust. Flame* 161 (2014) 2054-2063.
40. F. L. Dryer, S. Jahangirian, S. Dooley, **S. H. Won**, J. Heyne, V. R. Iyer, T. A. Litzinger, R. J. Santoro, "Emulating the Combustion Behavior of Real Jet Aviation Fuels by Surrogate Mixtures of Hydrocarbon Fluid Blends: Implications for Science and Engineering," *Energy & Fuels* 28(5) (2014) 3474-3485.
39. T. M. Vu, **S. H. Won**, T. Ombrello, M. S. Cha, "Stability Enhancement of Ozone-Assisted Laminar Premixed Bunsen Flames in Nitrogen Co-Flow," *Combust. Flame* 161 (2014) 917-926.
38. **S. H. Won**, S. Dooley, P. S. Veloo, H. Wang, M. A. Oehlschlaeger, F. L. Dryer, Y. Ju, "The Combustion Properties of 2,6,10-Trimethyl Dodecane and a Chemical Functional Group Analysis," *Combust. Flame* 161 (2014) 826-834.
37. **S. H. Won**, B. Windom, B. Jiang, Y. Ju, "The Role of Low Temperature Fuel Chemistry on Turbulent Flame Propagation," *Combust. Flame* 161 (2014) 475-483.
36. P. Diévart, H. H. Kim, **S. H. Won**, Y. Ju, S. Dooley, F. L. Dryer, W. Wang, M. A. Oehlschlaeger, "The Combustion Properties of 1,3,5-Trimethylbenzene and a Kinetic Model," *Fuel* 109 (2013) 125-136.
35. W. Sun, **S. H. Won**, T. Ombrello, C. Carter, Y. Ju, "Direct Ignition and S-Curve Transition by in situ Nano-Second Pulsed Discharge in Methane/Oxygen/Helium Counterflow Flame," *Proc. Combust. Inst*. Vol 34(1), pp. 847-855 (2013).
34. J. K. Lefkowitz, **S. H. Won**, Y. Fenard, Y. Ju, "Uncertainty Assessment of Species Measurements in Acetone Counterflow Diffusion Flames," *Proc. Combust. Inst*. Vol 34(1), pp. 813-820 (2013).
33. H. H. Kim, **S. H. Won**, J. Santner, Z. Chen, Y. Ju, "Measurements of the Critical Initiation Radius and Unsteady Propagation of n-Decane/Air Premixed Flames," *Proc. Combust. Inst*. Vol 34(1), pp. 929-936 (2013).
32. P. Diévart, **S. H. Won**, J. Gong, S. Dooley, Y. Ju, "A Comparative Study of the Chemical Kinetic Characteristics of Small Methyl Esters in Diffusion Flame Extinction," *Proc. Combust. Inst*. Vol 34(1), pp. 821-829 (2013).
31. S. Dooley, **S. H. Won**, S. Jahangirian, Y. Ju, F. L. Dryer, H. Wang, M. A. Oehlschlaeger, "The Combustion Kinetics of A Synthetic Paraffinic Jet Aviation Fuel and A Fundamentally Formulated, Experimentally Validated Surrogate Fuel," *Combust. Flame* 159(10), pp. 3014-3020 (2012).
30. P. Diévart, **S. H. Won**, S. Dooley, F. L. Dryer, Y. Ju, "A Kinetic Model for Methyl Decanoate Combustion," *Combust. Flame*, 159(5), pp. 1793-1805 (2012).
29. S. Dooley, **S. H. Won**, J. Heyne, T. I. Farouk, Y. Ju, F. L. Dryer, K. Kamar, C.-J. Sung, H. Wang, M. A. Oehlschlaeger, T. A. Litzinger, R. J. Santoro, T. Malewecki, K. Brezinsky, "The Experimental Evaluation of a Methodology to Surrogate Fuel Formulation for the Emulation of Combustion Kinetic

Phenomena by a Theory of Real Fuel Oxidation," *Combust. Flame*, 159(4), pp. 1444-1466 (2012).

28. S. Dooley, M. Uddi, **S. H. Won**, F. L. Dryer, Y. Ju, "Methyl Butanoate Inhibition of n-Heptane Diffusion Flames through an Evaluation of Transport and Chemical Kinetics," *Combust. Flame*, 159(4), pp. 1371-1384 (2012).
27. J. K. Lefkowitz, J. S. Heyne, **S. H. Won**, S. Dooley, H. H. Kim, F. M. Hass, S. Jahangirian, F. L. Dryer, Y. Ju, "A Chemical Kinetic Study of tertiary-Butanol in a flow reactor and a counterflow diffusion flame," *Combust. Flame*, 159(3), pp. 968-978 (2012).
26. **S. H. Won**, S. Dooley, F. L. Dryer, Y. Ju, "A Radical Index for the Determination of the Chemical Kinetic Contribution to Diffusion Flame Extinction of Large Hydrocarbon Fuels," *Combust. Flame*, 159(2), pp. 541-551 (2012).
25. W. Sun, M. Uddi, **S. H. Won**, T. Ombrello, C. Carter, Y. Ju, "Kinetic Effects of Non-Equilibrium Plasma-Assisted Methane Oxidation on Diffusion Flame Extinction Limits," *Combust. Flame*, Vol 159(1), pp. 221-229 (2012).
24. W. Sun, M. Uddi, T. Ombrello, **S. H. Won**, C. Carter, Y. Ju, "Effects of Non-Equilibrium Plasma Discharge on Counterflow Diffusion Flame Extinction," *Proc. Combust. Inst*. Vol 33, pp. 3211-3218 (2011).
23. **S. H. Won**, S. Dooley, F. L. Dryer, Y. Ju, "Kinetic Effect of Aromatic Molecular Structures on Diffusion Flame Extinction," *Proc. Combust. Inst*. Vol 33, pp. 1163-1170 (2011).
22. S. Dooley, **S. H. Won**, M. Chaos, J. Heyne, Y. Ju, F. L. Dryer, K. Kumar, C. –J. Sung, H. Wang, M. A. Oehlschlaeger, R. J. Santoro, T. A. Litzinger, "A Jet Fuel Surrogate Formulated By Real Fuel Properties," *Combust. Flame*, Vol 157(12), pp. 2333-2339 (2010).
21. T. Ombrello, **S. H. Won**, Y. Ju, S. Williams, "Flame Propagation Enhancement by Plasma Excitation of Oxygen Part II: Effect of $O_2(a^1\Delta_g)$," *Combust. Flame*, Vol 157(10), pp. 1916-1928 (2010).
20. T. Ombrello, **S. H. Won**, Y. Ju, S. Williams, "Flame Propagation Enhancement by Plasma Excitation of Oxygen Part I: Effect of O_3," *Combust. Flame*, Vol 157(10), pp. 1906-1915 (2010).
19. K. W. Chun, J. Kim, **S. H. Won**, S. H. Chung, "Characteristics of Vertically Injected Buoyant Jets of Highly Diluted Propane," *Journal of Mechanical Science and Technology*, Vol 24(4), pp. 865-871 (2010).
18. **S. H. Won**, W. Sun, Y. Ju, "Kinetic Effects of Toluene Blending on the Extinction Limit of n-Decane Diffusion Flames," *Combust. Flame*, Vol 157, pp. 411-420 (2010).
17. S. K. Ryu, Y. K. Kim, M. K. Kim, **S. H. Won**, S. H. Chung, "Observation of Multi-Scale Oscillation of Laminar Lifted Flames with Low Frequency AC Electric Fields," *Combust. Flame*, Vol 157, pp. 25-32 (2010).
16. M. K. Kim, S. K. Ryu, **S. H. Won**, S. H. Chung, "Electric Fields Effect on Liftoff and Blowoff of Nonpremixed Laminar Jet Flames in a Coflow," *Combust. Flame*, Vol 157, pp. 17-24 (2010).
15. J. S. Kim, W. Yang, Y. Kim, **S. H. Won**, "Behavior of Buoyancy and Momentum Controlled Hydrogen Jets and Flames Emitted into the Quiescent Atmosphere," *Journal of Loss Prevention in the Process Industries*, Vol 22, pp. 943-949 (2009).
14. S. K Ryu, **S. H. Won**, S. H. Chung, "Laser-Induced Multi-Point Ignition with Single-Shot Laser Using Conical Cavities and Prechamber with Jet Holes," *Proc. Combust. Inst*. Vol 32, pp. 3189-3196

(2009).

13. **S. H. Won**, S. K. Ryu, M. K. Kim, M. S. Cha, S. H. Chung, "Effect of Electric Fields on the Propagation Speed of Tribrachial Flames in Coflow Jets," *Combust. Flame* Vol 152, pp. 496-506 (2008).
12. K. N. Kim, **S. H. Won**, S. H. Chung, "Characteristics of Turbulent Lifted Flames in Coflow Jets with Initial Temperature Variation," *Proc. Combust. Inst*. Vol 31, pp. 1591-1598 (2007).
11. K. N. Kim, **S. H. Won**, S. H. Chung, "Characteristics of Laminar Lifted Flames in Coflow Jets with Initial Temperature Variation," *Proc. Combust. Inst*. Vol 31, pp. 947-954 (2007).
10. M. K. Kim, **S. H. Won**, S. H. Chung, "Effect of Velocity Gradient on Propagation Speed of Tribrachial Flames in Laminar Coflow Jets," *Proc. Combust. Inst*. Vol 31, pp. 901-908 (2007).
9. **S. H. Won**, M. S. Cha, C. S. Park, S. H. Chung, "Effect of Electric Fields on Reattachment and Propagation Speed of Tribrachial Flames in Laminar Coflow Jets," *Proc. Combust. Inst*. Vol 31, pp. 963-970 (2007).
8. J. Kim, K. N. Kim, **S. H. Won**, O. Fujita, J. Takahashi, S. H. Chung, "Numerical Simulation and Flight Experiment on Oscillating Lifted Flames in Coflow Jet with Gravity Level Variation," *Combust. Flame* Vol 145, pp. 181-193 (2006).
7. **S. H. Won**, J. Kim, K. J. Hong, M. S. Cha, S. H. Chung, "Stabilization Mechanism of Lifted Flame Edge in the Near Field of Coflow Jets for Diluted Methane," *Proc. Combust. Inst*. Vol 30, pp. 339-347 (2005).
6. **S. H. Won**, J. Lee, S. H. Jin, S. H. Chung, "Visualization of Lifted Laminar Jet Flame by Rayleigh Scattering, OH PLIF, and CH Chemiluminescence," *J. Visualization* Vol 6, pp 311 (2003).
5. J. Lee, **S. H. Won**, S. H. Jin, S. H. Chung, "Lifted Flames in Laminar Jets of Propane in Coflow Air," *Combust. Flame* Vol 135, pp. 449-462 (2003).
4. J. Lee, **S. H. Won**, S. H. Jin, S. H. Chung, O. Fujita, K. Ito, "Propagation Speed of Tribrachial (Triple) Flame of Propane in Laminar Jets under Normal and Microgravity Conditions," *Combust. Flame* Vol 134, pp. 411-420 (2003).
3. J. Kim, **S. H. Won**, M. K. Shin, S. H. Chung, "Numerical Simulation of Oscillating Lifted Flames in Coflow Jets with Highly Diluted Propane," *Proc. Combust. Inst*. Vol 29, pp. 1589-1595 (2002).
2. **S. H. Won**, J. Kim, M. K. Shin, S. H. Chung, O. Fujita, T. Mori, J. H. Choi, K. Ito, "Normal and Micro Gravity Experiment of Oscillating Lifted Flames in Coflow," *Proc. Combust. Inst*. Vol 29, pp. 37-44 (2002).
1. **S. H. Won**, M. S. Cha, S. H. Chung, B. J. Lee, "Lifted Flame Stabilization in Developing and Developed Regions of Coflow Jets for Highly Diluted Propane," *Proc. Combust. Inst*. Vol 28, pp. 2093-2099 (2000).

Conferences

47. C. B. Reuter, **S. H. Won**, Y. Ju, "Second-State Ignition Limit of Self-Sustaining Partially Premixed Cool Flames," 2016 Spring Technical Meeting, Eastern States Sections of the Combustion Institute, Princeton NJ (2016).
46. F. M. Haas, **S. H. Won**, F. L. Dryer, "Detailed and Compact Combustion Kinetic Models for iso-

Dodecane and Gevo Alcohol-to-Jet (ATJ) Alternative Fuel," 2016 Spring Technical Meeting, Eastern States Sections of the Combustion Institute, Princeton NJ (2016).

45. C. B. Reuter, **S. H. Won**, Y. Ju, "Effects of Water and CO_2 Dilution on the Burning Characteristics of Methane/Air Premixed Flames in a Reactor-Assisted Turbulent Slot Burner," 2016 Spring Technical Meeting, Eastern States Sections of the Combustion Institute, Princeton NJ (2016).
44. C. B. Reuter, **S. H. Won**, Y. Ju, "Flame Dynamics and Structures of Partially Premixed Cool Flames," 54th AIAA Aerospace Sciences Meeting, San Diego CA (2016).
43. Y. Ju, J. K. Lefkowitz, T. Wada, X. Yang, **S. H. Won**, W. Sun, "Plasma Assisted Combustion: Kinetic Studies and New Combustion Technology," 53rd AIAA Aerospace Sciences Meeting, Kissimmee FL (2015).
42. **S. H. Won**, S. Nakane, C. B. Reuter, B. C. Windom, Y. Ju, "Effect of Ignition Chemistry on Turbulent Premixed Flames of n-Heptane and Toluene," 53rd AIAA Aerospace Sciences Meeting, Kissimmee FL (2015).
41. C. B. Reuter, **S. H. Won**, Y. Ju, "Cool Flames Activated by Ozone Addition," 53rd AIAA Aerospace Sciences Meeting, Kissimmee FL (2015).
40. **S. H. Won**, S. Dooley, P. Veloo, J. S. Santner, Y. Ju, F. L. Dryer, "Characterization of Global Combustion Properties with Simple Fuel Property Measurements for Alternative Jet Fuels," 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland OH (2014).
39. S. Dooley, **S. H. Won**, F. M. Haas, J. S. Santner, Y. Ju, F. L. Dryer, T. Farouk, "Development of Reduced Kinetic Models for Petroleum-Derived and Alternative Jet Fuels," 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland OH (2014).
38. **S. H. Won**, B. Jiang, Y. Ju, "A New Cool Flame: Establishment and Studies of Dynamics and Kinetics," *52nd AIAA Aerospace Sciences Meeting*, National Harbor, Maryland (2014).
37. B. Windom, **S. H. Won**, B. Jiang, Y. Ju, "Detailed Characterization of Low Temperature Chemistry and Turbulence Interaction in Reactor-Assisted Turbulent Premixed Flames," *52nd AIAA Aerospace Sciences Meeting*, National Harbor, Maryland (2014).
36. **S. H. Won**, S. Dooley, P. S. Veloo, H. Wang, M. A. Oehlschlaeger, F. L. Dryer, Y. Ju, "Quantification of Molecular Structure Impact of Combustion Properties for Synthetic Diesel Fuel: 2,6,10-Trimethyldodecane," *The 8th National Combustion Meeting*, Park City, Utah (2013).
35. P. S. Veloo, **S. H. Won**, F. L. Dryer, "Oxidation Reactivity Characteristics of Alternative Aviation Fuels," *The 8th National Combustion Meeting*, Park City, Utah (2013).
34. W. Sun, **S. H. Won**, Y. Ju, "*In Situ* Plasma Activated Low Temperature Chemistry and S-Curve Transition in DME/Oxygen/Helium Mixture," *The 8th National Combustion Meeting*, Park City, Utah (2013).
33. B. Windom, **S. H. Won**, B. Jiang, Y. Ju, "Studies of Turbulent Flame Propagation and Chemistry Interaction at Elevated Temperatures and High Reynolds Numbers," *The 8th National Combustion Meeting*, Park City, Utah (2013).
32. B. Windom, S**. H. Won**, T. Wada, B. Jiang, Y. Ju, "Study of Turbulent Flame Propagation and Surface Characteristics at Large Reynolds Numbers," *51th AIAA Aerospace Sciences Meeting*, Grapevine, Texas (2013).

31. J. S. Santner, **S. H. Won**, Y. Ju, "Experimental Assessment of Transport and Chemical Kinetic Impact on Critical Flame Initiation Radius in Outwardly Propagating Premixed Flames," *51th AIAA Aerospace Sciences Meeting*, Grapevine, Texas (2013).
30. **S. H. Won**, P. S. Veloo, J. Santner, Y. Ju, F. L. Dryer, "Comparative Evaluation of Global Combustion Properties of Alternative Jet Fuels," *51th AIAA Aerospace Sciences Meeting*, Grapevine, Texas (2013).
29. S. Dooley, F. L. Dryer, T. Farouk, Y. Ju, **S. H. Won**, "Reduced Kinetic Models for the Combustion of Jet Propulsion Fuels," *51th AIAA Aerospace Sciences Meeting*, Grapevine, Texas (2013).
28. **S. H. Won**, H. H. Kim, J. Santner, Y. Ju, "The Critical Radius of Flame Initiation and Propagation of n-Decane/Air Premixed Flames," *50th AIAA Aerospace Sciences Meeting*, Nashville, Tennessee (2012).
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