JAEYOUNG CHO

Mobile: (915) 747-6903
Email: jcho4@utep.edu
Web: http://utep.edu/sparklab

The University of Texas at El Paso,
Engineering Building Room A-105
500 W University, El Paso, TX 79968, United States

KEYWORDS

Research: Combustion; Reaction Kinetics; Artificial Intelligence; Material Design; Atomic Simulation
Teaching: Collegiate Rocket Team; Senior Design Project; Aerospace Propulsion; Thermodynamics

EDUCATION

PhD Mechanical Engineering — Mar. 2014 – Feb. 2020
Seoul National University, Seoul, South Korea
Advisor: Prof. Han Ho Song
Dissertation: *"Optimization of Ethanol Content in Gasoline-Ethanol Blend Fuel with RON100 for Knock Suppression in Spark Ignition Engine"* Link

BSc Mechanical and Aerospace Engineering — Mar. 2010 – Feb. 2014
Seoul National University, Seoul, South Korea

RESEARCH EXPERIENCE

Assistant Professor — Sep. 2023 – present
Department of Aerospace and Mechanical Engineering,
The University of Texas at El Paso, El Paso, Texas, US
Principal investigator of Synfuel, Propulsion, and Reaction Kinetics Laboratory (SPaRK Lab)
Affiliated faculty of *Aerospace Center*

Postdoctoral Researcher — Mar. 2021 – Aug. 2023
Chemical Sciences and Engineering Division,
Argonne National Laboratory, Lemont, Illinois, US
Supervisor: Dr. Raghu Sivaramakrishnan
Main project "*Argonne-Sandia Consortium on High-Pressure Combustion Chemistry*" from US DOE.

Postdoctoral Researcher — Mar. 2020 – Mar. 2021
Computational Modeling Department,
National Renewable Energy Laboratory, Golden, Colorado, US
Supervisor: Prof. Seonah Kim
Main project "*Co-Optimization of Fuels & Engines*" from US DOE.

Undergraduate/Graduate Research Assistant — Mar. 2013 – Feb. 2020
Department of Mechanical and Aerospace Engineering,
Seoul National University, Seoul, South Korea
Supervisor: Prof. Han Ho Song
Main project: "*Automotive Technologies for E3-level Biofueled Vehicles"* from Korea MOTIE.

TEACHING AND MENTORING EXPERIENCE

Principal Instructor, Dept. of Aerospace and Mechanical Engineering 2023 – Present
The University of Texas at El Paso, El Paso, Texas, US
AERO3312 - Aerodynamics 1 (teaching evaluation: TBD)
AERO4322 - Aerospace Propulsion (teaching evaluation: 4.84/5.00 on average for three semesters)
MECH4336 - Principles of Engr Design (teaching evaluation: 5.00/5.00 in Spring 2025)
MECH4366 - Senior Design Project (teaching evaluation: 5.00/5.00 in Spring 2025)
MECH5305 - Computational Fluid Dynamics (teaching evaluation: 4.71/5.00 in Fall 2024)
MECH5303 - Heat Transfer I (teaching evaluation: 3.90/5.00 in Spring 2025)

Faculty Advisor, Sun City Summit Rocket Teams 2024 – Present
The University of Texas at El Paso, El Paso, Texas, US
Note: Mentoring >100 undergraduates on solid rocket motor design.
Secured 2nd place at the 2025 International Rocket Engineering Competition
Secured 1st place at the 2025 Lone Star Cup.
Secured 4th place at the 2024 Spaceport America Cup.

Research Supervisor, ten students in total 2023 – Present
The University of Texas at El Paso, El Paso, Texas, US
Advisee: Faihim Ahmed (PhD, 2024 – present), Md Razaul Karim (PhD, 2024 – present),
Evan M. Griffin (MSc, 2023 – present), Victor M. Bonilla (BSc, 2024 – present),
Emillio Arreola (BSc, 2024 – present), Ryan O. Flores (BSc, 2025 – present),
Ramiro Alcoverde (BSc, 2025 – present).
Alumni: Jesus A. Anaya (BSc, Bell Flight), Soo Min Bae (BSc, UNIST)
René D. Boisseau Gomez (TBD).

K-12 Student Mentor, ACT-SO Youth Program 2022 – 2023
Argonne National Laboratory, Lemont, Illinois, US
Mentee: Chandler Brady (Timothy Christian Highschool, Elmhurst, Illinois, US)
Secured Gold Medal in Chemistry of 2023 NAACP ACT-SO Competition.

Teaching Assistant, M2794.001100: Thermodynamics 2014 – 2015
Seoul National University, Seoul, South Korea
Course Instructor: Prof. Han Ho Song

AWARDS AND SCHOLARSHIPS

UTEP AME Department Outstanding Faculty Award	2025
Sobel-Duncan Border Health Research Award	2025
Outstanding Doctoral Dissertation Award from Seoul National University	2020
Scholarship from Brain Korea 21 (BK21) program	2014 – 2020
Outstanding Researcher Scholarship (Internal within the Laboratory)	2014 – 2016
Scholarship from Hoban Scholarship Foundation	2010 – 2014
National Science & Technology Scholarship	2010

SERVICE

Editorial Board Committee

- International Journal of Chemical Kinetics (Wiley)

Reviewer for Funding Agencies:

- Office of Science Graduate Research Program (United States Department of Energy)

Reviewer for Journals:

- Proceedings of the Combustion Institute (Elsevier)
- Journal of Physical Chemistry (American Chemical Society)
- Fuel (Elsevier)
- Combustion Science and Technology (Taylor & Francis)
- SAE International Journal of Fuels and Lubricants (SAE International)
- SAE Technical Papers (SAE International)

Reviewer for Conferences:

- International Symposium on Combustion (Combustion Institute)
- SAE World Congress Experience (SAE International)
- SAE Powertrains, Fuels & Lubricants Meeting (SAE International)
- JSAE/SAE Powertrains, Energy & Lubricants International Meeting (SAE International)

Chair of Technical Sessions:

- Technical Meeting of the Central States Section of the Combustion Institute (Combustion Institute)
- United States National Combustion Meeting (Combustion Institute)

Internal within the Institution:

- UTEP 2025-Present Undergraduate Program Coordinator
- UTEP 2024 Spring and 2024 Fall Graduate School Admission Committee
- UTEP 2024-Present Aerospace Engineering Curriculum Committee
- UTEP 2024-Present Aerospace/Mechanical Engineering Faculty Search Committee
- UTEP PhD and MSc Thesis Committee for multiple students

CURRENT, PAST, AND PENDING GRANTS

Allocated computing resources

[13] (Co-PI) Agency: *Texas Advanced Computing Center*, Title: Enhancing AI-Based Diagnosis of Chronic Ankle Instability Through Optimized Biomechanical Marker Selection, 2025 – 2026, 67,200 node-hours.

[12] (PI) Agency: *Texas Advanced Computing Center*, Title: Theoretical Calculation of Ring Opening Energies in Mono and Polycycloalkanes for Aviation Fuel, 2025 – 2026, 105,000 node-hours.

Granted financial support

[11] (Co-PI) Agency: *UTEP Research & Innovation*, Title: Transforming Engineering Internship Experiences through Co-Mentoring Circles, 2026 – 2027, $25,000.

[10] (Co-PI) Agency: *National Science Foundation,* Title: PREM Center for Energy and Biomaterials, 2018–2026, $4,334,297.

[9] (Co-PI) Agency: *Trauma Research and Combat Casualty Care Collaborative (TRC4),* Title: Optimizing Employment Outcomes among Veterans with Physical and Emotional War Traumas: Developing an AI Employment Readiness Prototype, 2025–2027, $296,761.

[8] (Co-I) Agency: *Sobel-Duncan Border Health Research Award,* Title: Reducing Health Disparities in Chronic Ankle Instability Diagnosis Among Hispanic Populations Using AI and Smartphone-Based Biomechanical Tools, 2025 – 2026, $40,000.

[7] (Co-PI) Agency: *UTEP Research & Innovation,* Title: A Cost-Effective AI-Powered Mobile Health System for Enhanced Gait Assessment in Resource-Limited Settings, 2025 – 2026, $25,000.

[6] (PI) Agency: *US Department of Transportation,* Title: Quantification of NOx Emissions from Transient Vehicle Operations in Hilly Terrains, 2025 – 2026, $50,000.

[5] (PI) Agency: *UTEP Research & Innovation*, Title: Exploring Opportunities for Research Growth at NSF Grants Conference Spring 2025, 2025, $1,500.

[4] (PI) Agency: *UTEP Campus Office of Undergraduate Research Initiatives*, 2024-2026, $22,360.

- Accelerating the Discovery of Energetic Polymeric Binders for Solid Rocket Motors Using Graph Neural Networks, 2025 summer/fall
- Developing a Graph Neural Network Model for Early Detection of Chronic Ankle Instability, 2025 summer/fall
- Fabrication of Nontoxic Solid Energetics for Educational Rocket Motors Using Advanced Manufacturing, 2025 summer
- Harnessing Quantum Mechanics to Understand the Combustion Characteristics of Cycloalkanes in Aviation Fuels, 2024 summer

[3] (PI) Agency: *UTEP University Research Institute Grant*, Title: Fundamental Kinetics Study on the Fire-Safety of Biodegradable and Bio-based Polymers, 2024 – 2024, $5,000.

[2] (PI) Agency: *The University of Texas System*, Title: Science and Technology Acquisition and Retention (STARs) program, 2023 – 2026, $90,000.

[1] (Co-PI) Agency: *Argonne LDRD Prime*, Title: Development of Predictive Tools to Enable Low-NOx Ammonia Combustion in Gas Turbine Engines, 2023 – 2025, $600,000.

+ with fifteen pending full proposals for internal/external funding opportunities.
(as of Jan 27th, 2026)

PUBLICATIONS AND PRESENTATIONS

Conference Proceedings (†: equal contribution, *: corresponding author, _: advisee)

All proceedings are in the process of manuscript preparation for peer-reviewed publication.
Any proceedings that have already been submitted for a peer-reviewed publication were not listed.

[30] J.A. Anaya†, M.R. Karim†, A.G. Castellanos, Y. Lin, **J. Cho***, Theoretical Kinetic Modeling of Preceramic Polymer Pyrolysis to Silicon Carbide, *14th U.S. National Combustion Meeting*, 2025, Link.

[29] V.M. Bonilla†, E. Arreola†, R.D. Boisseau Gomez, J.A. Anaya, C.V. Ramana, E. Shafirovich, **J. Cho***, HEAT-UP: Design of Polymeric Binder for Green Solid Propellant using Graph Neural Networks, *14th U.S. National Combustion Meeting*, 2025, Link.

[28] S.M. Bae, R.D. Boisseau Gomez, **J. Cho***, "Leveraging Graph Neural Network in Prediction of Limiting Oxygen Index and Design of Flame-Retarding Polymers," *Fall Conference of Korea Society of Combustion*, 2024.

Peer-Reviewed Publications (†equal contribution, *corresponding author, _: advisee)

From UTEP

[27] E.M. Griffin, F. Ahmed, S. Kim, **J. Cho***, "Automated Calculation of Ring-Opening Energies of Cycloalkanes: The Role of Stereochemistry," *Proceedings of the Combustion Institute*, 2026. (under review)

[26] **J. Cho**, A.W. Jasper, S.J. Klippenstein, R. Sivaramakrishnan*, "Nonthermal Effects in the Dissociation of HOCO Radical," *Proceedings of the Combustion Institute*, 2026. (under review)

[25] **J. Cho**,† V.M. Bonilla,† E.A, Wikstrom, C.M Genrich, E. Umucu, A.B. Nasser, J. Kim, J. Jang SPEED-UP: Artificial Intelligence for Easy Detection of Gait Alterations In those with Chronic Ankle Instability, *Journal of Biomechanics*, 2025. (under review)

[24] F. Ahmed, **J. Cho***, S. Cheng, S.S. Goldsborough, S. Kim*, "Compositional effect on the ϕ-sensitivity of ignition delay time in multi-component gasoline," *Combustion and Flame*, 2025. (under review)

[23] J. Sultana†, J. Kim†, J. Jeon, A.A. Raheem, J. Jang, **J. Cho**, J. Kim*, "A Systematic Review of Exoskeleton Applications in Construction: Integrating Wearable Biosignal Sensors for Safety and Health," *Automation in Construction*, 2025. (under review)

[22] R.D. Boisseau Gomez†, M.R. Karim†, J.A. Anaya, **J. Cho***, AI-Experiment-Theory Integrated Study on Char Formation Kinetics of Polymeric Ablative Materials: Comparative Study of Phenolic Resin vs. Poly(*p*-phenylene oxide), Vol 247, *Polymer Degradation and Stability*, 2026, Link.

[21] C. Leite-Madeira, **J. Cho**, R.D. Boisseau Gomez, C.C. Montagner, "Natural organic matter decreases the sorption capacity of fipronil and its degradation products onto polyethylene microplastics: Combined experimental and theoretical insights," Vol 5, *ACS ES&T Water*, 2025, Link.

[20] S. Lee, K. Kim, J. Lee, Y. Kim, **J. Cho***, S. Oh*, K. Min, "NOx Reduction in Hydrogen-Fueled Direct-Injected Spark Ignition (DISI) Engines Using Post-Injection Strategy: Experimental and Kinetic Insights," Vol 324, *Energy*, 2025, Link.

[19] C. Convertino*, I. Frausto Hernandez, R.K. Pinilla, C. Leite-Madeira L.M. Houghtalen, R.M. Pankow, L.O. Villanueva, **J. Cho**, J.T. Olimpo, E.C. Bitner, "Faculty Reflections on Implementing Servingness into Research and Teaching: How Professional Development around Servingness Fosters Latinx Student Success," *Journal of Latinos and Education*, 2024, Link.

[18] **J. Cho**, N.J. Labbe, L.B. Harding, S.J. Klippenstein, R. Sivaramakrishnan*, "Competing Radical and Molecular Channels in the Unimolecular Dissociation of Methylformate," Vol 40, *Proceedings of the Combustion Institute*, 2024, Link.

[17] H. Jung[†], **J. Cho**[†], Y. Kim, Z. Xiang, S. Kumar, P. Banard, C.S. McEnally, L.D. Pfefferle, S. Kim[*], "Sooting Tendency of Substituted Aromatic Oxygenates: The Role of Functional Groups and Positional Isomerism in Vanillin Isomers," *Proceedings of the Combustion Institute*, Vol 40, 2024, Link.

[16] Y. Kim[†], **J. Cho**[†], H. Jung, L.E. Meyer, G.M. Fioroni, C.D. Stubbs, K. Jeong, R.L. McCormick, P.C. St. John[*], S. Kim[*], "Design Green Chemicals by Predicting Vaporization Properties to Using Explainable Graph Attention Networks," *Green Chemistry*, Vol 26, 2024, Link.

From Argonne, NREL, and Seoul National University

[15] **J. Cho**, D. Roesch, Y. Tao, D.L. Osborn, S.J. Klippenstein, L. Sheps[*], R. Sivaramakrishnan[*], "Modeling–Experiment–Theory Analysis of Reactions Initiated from Cl + Methyl Formate," *The Journal of Physical Chemistry A*, Vol 127, 2023, Link.

[14] Y. Kim[†], S. Kumar[†], **J. Cho**, N. Naser, W. Ko, P.C. St. John, R.L. McCormick, S. Kim[*], "Designing high-performance fuels through graph neural networks for predicting cetane number of multicomponent surrogate mixtures," *SAE Technical Papers*, 2023-32-0052, 2023, Link.

[13] **J. Cho**, C.R. Mulvihill, S.J. Klippenstein, R. Sivaramakrishnan[*], "Bimolecular peroxy radical (RO_2) reactions and their relevance in radical initiated oxidation of hydrocarbons," *The Journal of Physical Chemistry A*, Vol 127, 2023, Link.

[12] **J. Cho**, A.W. Jasper, Y. Georgievskii, S.J. Klippenstein, R. Sivaramakrishnan[*], "The role of energy transfer and competing reactions in the thermal and prompt dissociations of allylic radicals," *Combustion and Flame*, Vol 257, 2023, Link.

[11] **J. Cho**, J. Luecke, M.J. Rahimi, Y. Kim, B.T. Zigler, S. Kim[*], "Enhancing ϕ-sensitivity of ignition delay times through dilution of fuel-air mixture," *Proceedings of the Combustion Institute*, Vol 39, Issue 4, 2023, Link.

[10] Y. Kim[†], **J. Cho**[†], N. Naser, S. Kumar, K. Jeong, R.L. McCormick, P.C. St. John[*], S. Kim[*], "Physics-informed graph neural networks for predicting cetane number with systematic data quality analysis," *Proceedings of the Combustion Institute*, Vol 39, Issue 4, 2023, Link.

[9] L.P. Maffei[*], K.B. Moore III, Y. Georgievskii, C.R. Mulvihill, S.N. Elliott, **J. Cho**, R. Sivaramakrishnan, T. Faravelli, S.J. Klippenstein, "Automated identification and calculation of prompt effects in kinetic mechanisms using statistical model," *Combustion and Flame*, Vol 257, 2023, Link.

[8] **J. Cho**, Y. Tao, Y. Georgievskii, S.J. Klippenstein, A.W. Jasper, R. Sivaramakrishnan[*], "The role of collisional energy transfer on the thermal and prompt dissociation of 1-methyl allyl," *Proceedings of the Combustion Institute*, Vol 39, Issue 1, 2023, Link.

[7] **J. Cho**[†], Y. Kim[†], B.D. Etz, G.M. Fioroni, N. Naser, J. Zhu, Z. Xiang, C. Hays, J.V. Alegre-Requena, P.C. St. John, B.T. Zigler, C.S. McEnally, L.D. Pfefferle, R.L. McCormick, S. Kim[*], "Bioderived ether design for low emission and high reactivity transport fuels," *Sustainable Energy & Fuels*, Vol 6, 2022, Link.

[6] **J. Cho**, H.H. Song[*], "Dimensionless parameters determining the effect of dilution on ignition delay of syngas and hydrocarbon fuels," *Combustion and Flame*, Vol 213, 2020, Link.

[5] **J. Cho**, H.H. Song*, "Development of knock prediction model for a spark-ignition engine with gasoline-ethanol-nbutanol blend fuel by using rapid compression machine," *SAE Technical Papers*, 2019-24-0125, 2020, Link.

[4] **J. Cho**, H.H. Song*, "Understanding the effect of inhomogeneous fuel – air mixing on knocking characteristics of various ethanol reference fuels with RON 100 using rapid compression machine", *Proceedings of the Combustion Institute*, Vol 37, Issue 4, 2019, Link.

[3] **J. Cho**, H.H. Song*, "Understanding the effect of inhomogeneous mixing on knocking characteristics of iso-octane by using rapid compression machine," *SAE International Journal of Engines*, Vol 11, Issue 6, 2018, Link.

[2] **J. Cho**, Y. Kim, J. Song, T.K. Lee and H.H. Song*, "Design of dynamic plant model and model-based controller for a heat recovery system with a swirling flow incinerator," *Energy*, Vol 147, 2018, Link.

[1] **J. Cho**, H.H. Song*, "Understanding the effect of external-EGR on anti-knock characteristics of various ethanol reference fuel with RON 100 by using rapid compression machine", *Proceedings of the Combustion Institute*, Vol 36, Issue 3, 2017, Link.

Presentations (#presenter, _: advisee)

[64] (**Invited**) **J. Cho**#, "Engineering Application of Cheminformatics - Rational Design of Alternative Fuel and Materials," Pukyung National University, Virtual Seminar, South Korea, 2025.

[63] (**Invited**) **J. Cho**#, "Accelerating Fuel & Material Innovation via AI-Theory-Experiment Integration," *40U40 E-lecture Series on Combustion*, Virtual Seminar, Belgium, 2025.

[62] **(Invited) J. Cho**#, "Being in the boundary of disciplines – opportunities for a chemical kineticist in the mechanical engineering department," *Gyeongsang National University*, Virtual Seminar, South Korea, 2024.

[61] **(Invited) J. Cho**#, "Accelerating the biofuel discovery through integration of graph neural networks with chemical kinetics," *ACS 28th Annual Green Chemistry & Engineering Conference,* Oral presentation, Atlanta, US, 2024.

[60] (**Invited**) **J. Cho**#, "Designing Green Chemicals for Sustainable Propulsion: AI-theory-experiment combined approach," *Workshop on Materials for Energy & Electronics,* Oral presentation, El Paso, US, 2024.

[59] **(Invited) J. Cho**#, S.N. Elliott, R. Sivaramakrishnan, "Theory-informed Stoichiometry Constrained Kinetics Database for Combustion Applications," *ACS Fall 2023 Virtual Meeting & Expo,* Oral presentation, San Francisco, US, 2023.

[58] **(Invited) J. Cho**#, A.W. Jasper, Y. Georgievskii, S.J. Klippenstein, R. Sivaramakrishnan, "Competition between unimolecular/bimolecular reactions of allylic radicals and their relevance in flames," *6th International Flame Chemistry Workshop*, Oral presentation, Virtual conference, 2022.

[57] V.M. Bonilla#, A.B Nasser, J. Jang, **J. Cho**, "Estimating Ground Reaction Forces from Marker-Based 3D Gait Trajectories Using Machine Learning," El Paso Regional Human Factors and Ergonomics Conference, Oral presentation, El Paso, TX, 2026 (submitted)

[56] A.B. Nasser[#], **J. Cho**, J.D. Eggleston, D.S. Nava, J. Jang, "Differentiating Chronic Ankle Instability from Uninjured Controls Using Markerless Smartphone Motion Capture," El Paso Regional Human Factors and Ergonomics Conference, Oral presentation, El Paso, TX, 2026 (submitted)

[55] E.M. Griffin, F. Ahmed, S. Kim, **J. Cho**, "Automated Calculation of Ring-Opening Energies of Cycloalkanes: The Role of Stereochemistry," 41st International Symposium on Combustion, Oral presentation, Kyoto, Japan, 2026. (submitted)

[54] F. Ahmed, M. Zhou, M. Lee, **J. Cho**[#], "Toward a consensus on low-temperature oxidation kinetics of dimethyl ethers," 41st International Symposium on Combustion, Oral presentation, Kyoto, Japan, 2026. (submitted)

[53] **J. Cho**[#], A.W. Jasper, S.J. Klippenstein, R. Sivaramakrishnan, "Nonthermal Effects in the Dissociation of HOCO Radical," 41st International Symposium on Combustion, Oral presentation, Kyoto, Japan, 2026. (submitted)

[52] A.B. Nasser[#], **J. Cho**, V.M. Bonilla, E.A. Wikstrom, J. Kim, C.M. Genrich, E. Umucu, J. Jang, "Identifying Biomechanical Alterations In Chronic Ankle Instability Using A Single Retroreflective Marker Leveraging Artificial Intelligence," *ACSM '26 Annual Meeting*, Salt Lake City, UT, 2026. (submitted)

[51] R.D. Boisseau Gomez, M.R. Karim, J.A. Anaya, **J. Cho**[#], "AI-experiment-theory intergrated analysis of the role of molecular structure in determining char yield of ablative polymers," 15th Ablation Workshop, Las Cruces, NM, 2025. (accepted)

[50] **J. Cho**, V.M. Bonilla, E.A. Wikstrom, J. Jang[#], "Artificial Intelligence for Streamlined CAI Diagnosis: Single-marker Gait Analysis Using Machine Learning," American Society of Biomechanics, Pittsburgh, US, 2025.

[49] R.O. Flores[#], A. Renteria Marquez, **J. Cho**, "Fabrication of Nontoxic Solid Energetics for Educational Rocket Motors Using Advanced Manufacturing," *UTEP COURI Symposia*, El Paso, US, 2025

[48] V.M. Bonilla[#], J. Jang, **J. Cho**, "Developing a Graph Neural Network Model for Early Detection of Chronic Ankle Instability," *UTEP COURI Symposia*, El Paso, US, 2025

[47] R. Alcoverde[#], **J. Cho**, "Accelerating the Discovery of Energetic Polymeric Binders for Solid Rocket Motors Using Graph Neural Networks," *UTEP COURI Symposia*, El Paso, US, 2025

[46] **J. Cho**[#], E.M. Griffin, R. Sivaramakrishnan, L. Sheps, Kinetics of CH_3CO Radical Reactions Initiated from Cl + Acetaldehyde, *13th International Conference on Chemical Kinetics*, Tahoe City, US, 2025.

[45] F. Ahmed[#], Design of jet-stirred reactor for combustion kinetics study of polycycloalkanes as a key component in high performance aviation fuel, UTEP Grad Expo, El Paso, US, 2025.

[44] R.D. Boisseau Gomez, J.A. Anaya, **J. Cho**[#], Theoretical Investigation of Char Formation from Polymeric Ablative Materials for Spacecraft Thermal Protection Systems, *14th U.S. National Combustion Meeting*, Boston, US, 2025.

[43] E.M. Griffin, F. Ahmed, M.N.A. Islam, **J. Cho**[#], Structure-Property Relationship of Ring Opening Energies in Mono and Polycycloalkanes for Aviation Fuel, *14th U.S. National Combustion Meeting*, Boston, US, 2025.

[42] J.A. Anaya[†], M.R. Karim[†], A.G. Castellanos, Y. Lin, **J. Cho**[#], Theoretical Kinetic Modeling of Preceramic Polymer Pyrolysis to Silicon Carbide, *14th U.S. National Combustion Meeting*, Boston, US, 2025.

[41] V.M. Bonilla[†], E. Arreola[†], R.D. Boisseau Gomez, J.A. Anaya, C.V. Ramana, E. Shafirovich, **J. Cho**[#], HEAT-UP: Design of Polymeric Binder for Green Solid Propellant using Graph Neural Networks, *14th U.S. National Combustion Meeting*, Boston, US, 2025.

[40] S.M. Bae[#], R.D. Boisseau Gomez, **J. Cho**, "Leveraging Graph Neural Network in Prediction of Limiting Oxygen Index and Design of Flame-Retarding Polymers," *Fall Conference of Korea Society of Combustion*, Oral presentation, Jeju, South Korea, 2024.

[39] E.M. Griffin[#], **J. Cho**, "Harnessing Quantum Mechanics to Understand the Combustion Characteristics of Cycloalkanes in Aviation Fuels," *UTEP COURI Symposia*, El Paso, US, 2024

[38] J.A. Anaya, A.G. Castellanos, **J. Cho**[#], "Unveiling the chemical kinetics of SMP-10 pyrolysis for silicon carbide formulation," *40th International Symposium on Combustion,* Poster presentation, Milan, Italy, 2024.

[37] S.M. Bae, R.D Boisseau Gomez, **J. Cho**[#], "Enhancing the predictive accuracy of graph neural network for polymer flammability using transfer learning," *40th International Symposium on Combustion,* Poster presentation, Milan, Italy, 2024.

[36] **J. Cho**[#], N.J. Labbe, L.B. Harding, S.J. Klippenstein, R. Sivaramakrishnan, "Competing Radical and Molecular Channels in the Unimolecular Dissociation of Methylformate," *40th International Symposium on Combustion,* Oral presentation, Milan, Italy, 2024.

[35] H. Jung, **J. Cho**[#], Y. Kim, Z. Xiang, S. Kumar, P. Banard, C.S. McEnally, L.D. Pfefferle, S. Kim, "Sooting Tendency of Substituted Aromatic Oxygenates: The Role of Functional Groups and Positional Isomerism in Vanillin Isomers," *40th International Symposium on Combustion,* Oral presentation, Milan, Italy, 2024.

[34] **J. Cho**[#], R.D Boisseau Gomez, J.A. Anaya, "Bridging fuel and polymer databases for improved prediction of the thermal decomposition/oxidation behavior using graph neural networks," *ACS 28th Annual Green Chemistry & Engineering Conference,* Oral presentation, Atlanta, US, 2024.

[33] Y. Kim, S. Kumar, **J. Cho**, N. Naser, W. Ko, P.C. St. John, R.L. McCormick, S. Kim[#], "Designing high-performance fuels through graph neural networks for predicting cetane number of multicomponent surrogate mixtures," *Powertrain, Energy and Lubricants International Meeting,* Oral presentation, Kyoto, Japan, 2023.

[32] Y. Kim[#], S. Kumar, **J. Cho**, N. Naser, W. Ko, P.C. St. John, R.L. McCormick, S. Kim, "Predicting cetane numbers of multicomponent surrogate mixtures: A graph neural network approach to fuel design," *ACS Fall 2023 Virtual Meeting & Expo, Oral presentation, San Francisco,* US*, 2023.*

[31] **J. Cho**[#], S. Cheng, S.S. Goldsborough, S. Kim, "Compositional effect of multi-component gasoline
on the ϕ-sensitivity of ignition delay time," *13th U.S. National Combustion Meeting,* Oral presentation, College Station, US, 2023.

[30] **J. Cho**[#], A.W. Jasper, S.J. Klippenstein, R. Sivaramakrishnan, "Nonthermal Effects in the Dissociation of HOCO and Other Carbonyl-Centered Free Radicals," *13th U.S. National Combustion Meeting,* Oral presentation, College Station, US, 2023.

[29] **J. Cho**[#]**,** "A-priori theory-informed training of artificial neural networks for predictions of chemical reactivity," *2022 AIChE Annual Meeting*, Poster presentation, Phoenix, US, 2022.

[28] L.P. Maffei[#], K.B. Moore III, Y. Georgievskii, C.R. Mulvihill, S.N. Elliott, **J. Cho**, R. Sivaramakrishnan, T. Faravelli, S.J. Klippenstein, "Automated identification and calculation of prompt effects in kinetic mechanisms using statistical model," *6th International Flame Chemistry Workshop*, Oral presentation, Virtual conference, 2022.

[27] **J. Cho**[#], J. Luecke, M. J. Rahimi, Y. Kim, B.T. Zigler, S. Kim, "Enhancing ϕ-sensitivity of ignition delay times through dilution of fuel-air mixture," *39th International Symposium on Combustion,* Oral presentation, Vancouver, Canada, 2022.

[26] **J. Cho**[#], Y. Tao, Y. Georgievskii, S.J. Klippenstein, A.W. Jasper, R. Sivaramakrishnan, "The role of collisional energy transfer on the thermal and prompt dissociation of 1-methyl allyl." *39th International Symposium on Combustion,* Oral presentation, Vancouver, Canada, 2022.

[25] Y. Kim[#], **J. Cho**, N. Naser, S. Kumar, K. Jeong, R.L. McCormick, P.C. St. John, S. Kim, "Physics-informed graph neural networks for predicting cetane number with systematic data quality analysis." *39th International Symposium on Combustion,* Oral presentation, Vancouver, Canada, 2022.

[24] N. Naser[#], T. Chatterjee, G. Kukkadapu, G.M. Fioroni, **J. Cho**, Y. Kim, S. Kim, S. Cooper, E.L. Petersen, W.J. Pitz, R.L. McCormick, "Elucidating the effect of pressure on the low-temperature reaction pathways of 4-butoxyheptane – a novel blend stock," *39th International Symposium on Combustion,* Poster presentation, Vancouver, Canada, 2022.

[23] Y. Kim[#], H. Jung, K. Jeong, **J. Cho**, R.L. McCormick, P.C. St. John, S. Kim, "Chemically explainable graph attention networks for predicting fuel vaporization properties," *39th International Symposium on Combustion,* Poster presentation, Vancouver, Canada, 2022.

[22] **J. Cho**[#], C.R. Mulvihill, S.J. Klippenstein, R. Sivaramakrishnan, "Peroxy radical (RO_2) + OH reactions and their relevance in combustion simulations," *2022 Spring Technical Meeting of the Central States Section of the Combustion Institute,* Oral presentation, Detroit, US, 2022.

[21] **J. Cho**[#], A.W. Jasper, Y. Georgievskii, S.J. Klippenstein, R. Sivaramakrishnan, "The role of energy transfer and competing reactions in the thermal and prompt dissociations of allylic radicals," *2022 Spring Technical Meeting of the Central States Section of the Combustion Institute,* Oral presentation, Detroit, US, 2022.

[20] **J. Cho**[#], Y. Kim, B.D. Etz, G.M. Fioroni, N. Naser, J. Zhu, C. Hays, J.V. Alegre-Requena, P.C. St. John, B.T. Zigler, C.S. McEnally, L.D. Pfefferle, R.L. McCormick, S. Kim, "Elucidating the effect of chemical structure of linear, branched, and cyclic ethers of low emission and high reactivity," *ACS Spring 2022 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2022.

[19] N. Naser[#], S. Mohamed, **J. Cho**, Y. Kim, C. Hays, G.M. Fioroni, S. Kim, R.L. McCormick, "Understanding the effects of structural isomers on the combustion characteristics of diesel boiling range ethers," *ACS Spring 2022 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2022.

[18] Y. Kim[#], P.C. St. John, N. Naser, **J. Cho**, H. Cheong, R.L. McCormick, S. Kim, "Development of machine learning models to predict biofuel properties," *ACS Spring 2022 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2022.

[17] **J. Cho**[#], D. Roesch, Y. Tao, L. Sheps, S.J. Klippenstein, R. Sivaramakrishnan, "A combined modeling-experiment-theory (MET) analysis of reactions initiated from Cl + methylformate", *AGU Fall Meeting*, Poster presentation, Virtual conference, 2021.

[16] N. Naser[#], **J. Cho**, G. Kukkadapu, Y. Kim, G.M. Fioroni, S. Kim, W.J. Pitz, R.L. McCormick, "Elucidating the low temperature reaction pathway of 4-butoxyheptane – a novel bioblendstock for diesel fuel," *ACS Fall 2021 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2021.

[15] **J. Cho**[#], Y. Kim, B.D. Etz, G.M. Fioroni, J. Luecke, J. Zhu, P.C. St. John, B. Zigler, C.S. McEnally, L.D. Pfefferle, R.L. McCormick, S. Kim, "Chemical kinetics underlying the sooting tendency and auto-ignition characteristics of linear, branched, and cyclic ether compounds," *ACS Spring 2021 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2021.

[14] Y. Kim, [#] P.C. St John, **J. Cho**, H. Cheong, R.L. McCormick, S. Kim, "Heat of vaporization prediction of pure fuel compounds and fuel mixtures using graph attention networks," *ACS Spring 2021 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2021.

[13] **J. Cho**[#], Y. Kim, P.C. St. John, S. Kim, "ϕ-sensitivity of fuel at the engine-relevant condition with exhaust gas recirculation (EGR)," *ACS Fall 2020 Virtual Meeting & Expo*, Oral presentation, Virtual conference, 2020.

[12] **J. Cho**[#], K. Kim, C. Oh, H. Kim, Y. Jeon and H.H. Song, "Design of dynamic plant model and model-based controller for hot blast stove," *ASME IMECE,* Oral presentation, Salt Lake City, US, 2019.

[11] **J. Cho**[#], H.H. Song, "Development of knock prediction model for a spark-ignition engine with gasoline-ethanol-nbutanol blend fuel by using rapid compression machine," *14th SAE International Conference on Engines & Vehicles,* Oral presentation, Capri, Italy, 2019.

[10] **J. Cho**[#], K. Kim, C. Oh, H. Kim, Y. Jeon, H.H. Song, "Design of model-based controller for hot blast stove for enhancing stability and thermal efficiency," *The 34th ICROS Annual Conference*, Oral presentation, Kyungju, South Korea, 2019.

[9] **J. Cho**[#], H.H. Song, "Prediction of knock characteristics of gasoline-ethanol-nbutanol blend fuel with varying alcohol content," *The Annual Spring Conference of the Korean Society of Automobile Engineers*, Oral presentation, Jeju Island, South Korea, 2019.

[8] **J. Cho**[#], H.H. Song, "Understanding the effect of inhomogeneous fuel – air mixing on knocking characteristics of various ethanol reference fuels with RON 100 using rapid compression machine", *37th International Symposium on Combustion, Oral presentation*, Dublin, Ireland, 2018.

[7] **J. Cho**[#], H.H. Song, "Understanding the effect of inhomogeneous mixing on knocking characteristics of iso-octane by using rapid compression machine," *SAE World Congress*, Oral presentation, Detroit, US, 2018.

[6] **J. Cho**[#], K. Kim, C. Oh, H. Park, Y. Jeon, H.H. Song, "Design of one-dimensional dynamic model for hot blast stove," *The Annual Autumn Conference of the Korean Society of Mechanical Engineers*, Oral presentation, Jeongseon, South Korea, 2018.

[5] **J. Cho**[#], H.H. Song, “Understanding the effect of minor species in residual gas on knocking characteristics of various ethanol reference fuel with RON 100: modeling study”, *The Annual Spring Conference of the Korean Society of Automobile Engineers*, Oral presentation, Pusan, South Korea, 2018.

[4] **J. Cho**[#], Y. Kim, J. Song, T.K. Lee, H.H. Song, “Design of dynamic model and model-based controller for a steam generation plant with a waste incinerator,” *the 9th JSME-KSME Thermal and Fluids Engineering Conference*, Oral presentation, Okinawa, Japan, 2017.

[3] **J. Cho**[#], H.H. Song, “Understanding the effect of inhomogeneous mixing in SI engine on antiknock characteristics of various ethanol reference fuel with RON 100: modeling study”, *The Annual Spring Conference of the Korean Society of Automobile Engineers*, Oral presentation, Jeju Island, South Korea, 2017.

[2] **J. Cho**[#], H.H. Song, “Understanding the effect of external-EGR on anti-knock characteristics of various ethanol reference fuel with RON 100 by using rapid compression machine,” *36th International Symposium on Combustion*, Oral presentation, Seoul, South Korea, 2016.

[1] **J. Cho**[#], Y. Kim, J. Song, T.K. Lee, H.H. Song, “Design of model-based controller for waste incinerator,” *The Annual Autumn Conference of the Korean Society of Mechanical Engineers*, Oral presentation, Jeongseon, South Korea, 2016.