

Kent John Warren

✉ kent.warren@colorado.edu | [in LinkedIn](#)

Research Interests

Fundamental aspects of thermal and fluid sciences, chemical thermodynamics and kinetics, and solid-state ionics in relation to the development of commercially viable sustainable energy conversion and storage technologies

Education

University of Florida

Ph.D. Mechanical Engineering
Grade Point Average: 3.95/4.00

Gainesville, Florida
May 2017 – May 2019

University of Florida

M.S. Mechanical Engineering
Grade Point Average: 3.94/4.00

Gainesville, Florida
July 2015 – May 2017

Valparaiso University

B. S. Mechanical Engineering, *summa cum laude*
Grade Point Average: 3.85/4.00

Valparaiso, Indiana
Aug. 2011 – May 2015

Research Experience

OMC Hydrogen

Co-founder, Chief Science Officer

Boulder, Colorado
Dec. 2021 – Present

- Led the development of a proprietary technology for producing affordable green hydrogen or green syngas
- Closed a \$2.3 million seed funding round, which includes contributions from the Grantham Foundation and Susquehanna International Group, as well as awards from the U.S. Department of Energy Solar Energy Technologies Office and the Colorado Office of Economic Development and International Trade

University of Colorado Boulder | Department of Chemical & Biological Engineering

Research Associate

Boulder, Colorado
Feb. 2023 – Present

- Designed and demonstrated a first-iteration, prototype reactor to facilitate a highly efficient thermochemical H₂O and/or CO₂ splitting technology under simulated, concentrated solar energy
 - Authored the proposal titled, “Non-intermittent, Solar-thermal Processing to Split Water Continuously via a Near-isothermal, Pressure-swing Redox Cycle,” which – as of May 22, 2023 – was selected to receive a \$1 million award from U.S. Department of Energy Hydrogen and Fuel Cell Technologies Office

Postdoctoral Associate (Prof. Alan W. Weimer)

Aug. 2019 – Feb. 2023

- Characterized candidate oxygen-exchange materials and identified optimal operating strategies for thermochemical H₂O and/or CO₂ splitting applications at the prototype (TRL 5) scale
- Conceptualized a scheme for synthesizing benchmark reverse water-gas shift catalysts with improved transition metal utilization and stability and advised the direction of the accompanying experimental characterization
- Assisted in the development of reactor technology to sequentially facilitate (1) in-situ catalyst synthesis via atomic layer deposition and (2) production of hydrogen and carbon nanoproducts via catalytic chemical vapor deposition of natural gas; also advised the direction of process optimization and experimental characterization
 - Funded through the U.S. Department of Energy's ARPA-E program and National Energy Technology Laboratory (award numbers: DE-EE0008846 and DE-FE0031870, respectively)
- Advised the development and experimental characterization of highly energy-dense, silicon-based thermal energy storage devices for use in applications that operate above 1000°C
- Advised the development and experimental characterization of supported amines, prepared via molecular layer deposition, as a promising solid adsorbent material for direct air capture

- Managed and maintained the University of Colorado Boulder’s high-flux solar simulator, an apparatus capable of replicating the heat transfer characteristics of industrial concentrating solar systems

University of Florida | Department of Mechanical & Aerospace Engineering

Gainesville, Florida

Postdoctoral Associate (Prof. Jonathan R. Scheffe)

May 2019 – Aug. 2019

- Designed, manufactured, and demonstrated a first-iteration, prototype receiver-reactor to facilitate the chemical-looping dry reforming of methane over ceria under simulated, concentrated solar energy
 - Funded through the Qatar National Research Fund (award number: NPRP8-370-2-154)
- Managed and maintained the University of Florida's high-flux solar simulator

Graduate Research Assistant (Prof. Jonathan R. Scheffe)

July 2015 – May 2019

- Fundamentally characterized the equilibrium thermodynamics and heterogeneous kinetics of the noncatalytic partial oxidation of methane over ceria
 - Funded through the Qatar National Research Fund (award number: NPRP8-370-2-154)
- Managed and maintained a thermogravimetric analyzer coupled to a residual gas analyzer for characterization of high-temperature chemical reactions

Valparaiso University | College of Engineering

Valparaiso, Indiana

Undergraduate Research Assistant (Prof. Robert Palumbo)

Aug. 2013 – June 2015

- Developed solar reactor technology to facilitate the thermal electrolytic production of magnesium from magnesium oxide
 - Funded through the U.S. Department of Energy's ARPA-E program (award number: DE-AR0000421)
- Developed solar reactor technology to facilitate the thermal reduction of candidate oxygen-exchange materials for later use as a solute or anode in the production of hydrogen via water electrolysis
 - Funded through the U.S. National Science Foundation (award number: 1334896)
- Redesigned an automated pyrheliometer to autonomously track the position of the sun and enable real-time solar irradiance measurements

Teaching Experience

Valparaiso University | College of Engineering

Valparaiso, Indiana

Adjunct Professor

Jan. 2021 – May 2021

- Developed course content and conducted virtual lectures associated with two sections of GE 311 – Engineering Finance and handled accompanying duties, such as assignment/exam development and grading

University of Florida | Department of Mechanical & Aerospace Engineering

Gainesville, Florida

Teaching Assistant

Aug. 2018 – Dec. 2018

- Developed course content, conducted a class lecture, collaborated on assignment/exam development as well as grading, and provided individualized academic support to students for Prof. Jonathan R. Scheffe in EML 6417 – Solar Energy Utilization

Guest Lecturer

Feb. 2017

- Developed and conducted two undergraduate class lectures on the second law of thermodynamics for Prof. Jonathan R. Scheffe in EML 3100 – Thermodynamics

Service & Outreach

Peer Reviewer

Aug. 2015 – Present

- Joule (3), Energy & Environmental Science (3), Advanced Energy Materials (2), Nano Energy (1), Chemical Engineering Journal (1), Journal of Materials Chemistry A (2), Energy Conversion and Management (1), Journal of Catalysis (1), Solar Energy (4), Sustainable Energy & Fuels (2), Energy Advances (1), Energies (1), Journal of Physical Chemistry (1), Solar Compass (1), Journal of Solar Energy Engineering – Including Wind Energy and Building Energy Conservation (1), SolarPACES (1)

University of Colorado Boulder | Department of Chemical & Biological Engineering

Boulder, Colorado

Undergraduate and Graduate Research Assistant Mentor

Aug. 2019 – Present

- Supervised several students in the completion of their undergraduate and/or graduate research
- Served as technical liaison for several [CU BOLD Center](#)-sponsored senior capstone design projects, providing CU chemical engineering undergraduate students from traditionally underrepresented groups in engineering with an opportunity to help develop proposed technologies

University of Florida | Department of Mechanical & Aerospace Engineering

Gainesville, Florida

Undergraduate Research Assistant Mentor

Aug. 2015 – Aug. 2019

- Supervised two students, both admitted to the University Scholars Program, in the completion of their undergraduate research

Tau Beta Pi Engineering Honor Society

Valparaiso, Indiana

Vice President, Indiana Delta Chapter

Aug. 2014 – May 2015

- Organized and implemented activities associated with T.E.D. (i.e., The – Tired – Engineers' Day), a weeklong celebration of the work ethic and accomplishments of Valparaiso University's College of Engineering

Catholic Youth Renovation Project (CYRP)

Mission, Texas

Young Adult Coordinator, Contractor

June 2007 – June 2013

- Coordinated and led the design and construction of 6 homes (over the course of 6 consecutive summers) for low-income families residing in Texas' colonias

Awards & Honors

2021	11 th SOLARIS – Outstanding Presentation Award
2021	Postdoctoral Association of Colorado Boulder – Travel Award
2018	UF MAE – Graduate Student Research Award
2014	Tau Beta Pi – Tau Beta Pi Scholarship (Record No. 1005)
2011-2015	Valparaiso University – Presidential Scholarship
2011-2015	Valparaiso University – Gift Award
2011-2015	Valparaiso University – Varsity Football Letter Winner (4x)
2011-2015	Pioneer Football League – Academic Honor Roll Distinction (4x)
2011	University Interscholastic League – Academic State Champion in Calculator Applications

Publications

21. Hauck J., Harshberger S., **Warren K. J.**, Yazdi S., and Weimer A. W. "Tuning Catalysts with Atomic Layer Deposition and Thermal Treatments." 2024. In Preparation.
20. Loehde-Woolard H. C., Evans B., **Warren K. J.**, Weimer A. W. "Effects of Molecular Layer Deposition as a Functionalization Method on the Performance of Supported Amine Adsorbents." 2024. In Preparation.
19. Odak K., **Warren K. J.**, and Weimer A. W. "Derivation of Active Carbon Char from Microcrystalline Cellulose/Phenolic Resin Composites." 2024. In Preparation.
18. English M., **Warren K. J.**, Yazdi S., Odak K., and Weimer A. W. "ALD-synthesized Ni/CeO₂-based Catalysts for Reverse Water-Gas Shift Applications." 2024. In Preparation.
17. Tran J. T., **Warren K. J.**, Taylor L., Wilson C., and Weimer A. W. "Feasibility of Continuous Water and Carbon Dioxide Splitting via an Iron Aluminate-based Pressure-Swing Redox Cycle." 2024. In Preparation.
16. Tran J. T., **Warren K. J.**, Wilson S., Muhich C. L., Musgrave C. B., and Weimer A. W. "An Updated Review and Perspective of Efficient Hydrogen Generation via Solar Thermochemical Water Splitting." 2023. Submitted.

15. Koyama Y., Ito K., Ohta S., Nakakura M., Kodama T., **Warren K. J.**, Weimer A. W., and Matsubara K. "Two-step Carbon Dioxide Thermochemical Splitting Using Foam Device of Ceria and Hercynite." *Journal of Japan Solar Energy Society* 2023, 49, (4), 71-76. [DOI](#)
14. Tran J. T., **Warren K. J.**, Mejjic D., Anderson R. L., Jones L., Hauschulz D. S., Wilson C., and Weimer A. W. "Pressure-Enhanced Performance of Metal Oxides for Thermochemical Water and Carbon Dioxide Splitting." *Joule* 2023, 7, (8), 1759-1768. [DOI](#)
13. **Warren K. J.** and Weimer A. W. "Solar Thermochemical Fuels: Present Status and Future Prospects." *Solar Compass* 2022, 1, 100010. [DOI](#)
12. **Warren K. J.**, Tran J. T., and Weimer A. W. "A Thermochemical Study of Iron Aluminate-Based Materials: A Preferred Class for Isothermal Water Splitting." *Energy & Environmental Science* 2022, 15, (2), 806-821. [DOI](#)
11. **Warren K. J.**, Hill C. M., Carrillo R. J., and Scheffe J. R. "Facile CO₂ Separation and Subsequent H₂ Production via Chemical-Looping Combustion over Ceria-Zirconia Solid Solutions." *Physical Chemistry Chemical Physics* 2020, 22, (16), 8545-8556. [DOI](#)
10. **Warren K. J.**, Carrillo R. J., Greek B., Hill C. M., and Scheffe J. R. "Solar Reactor Demonstration of Efficient and Selective Syngas Production via Chemical-Looping Dry Reforming of Methane over Ceria." *Energy Technology* 2020, 8, (6), 2000053. [DOI](#)
9. Carrillo R. J., Hill C. M., **Warren K. J.**, and Scheffe J. R. "Oxygen Nonstoichiometry and Defect Equilibria of Yttrium Manganite Perovskites with Strontium A-Site and Aluminum B-Site Doping." *The Journal of Physical Chemistry C* 2020, 124 (8), 4448-4458. [DOI](#)
8. **Warren K. J.** "Solar Chemical-Looping Methane Reforming over Ceria." PhD diss. *University of Florida* 2019.
7. **Warren K. J.** and Scheffe J. R. "Role of Surface Oxygen Vacancy Concentration on the Dissociation of Methane over Nonstoichiometric Ceria." *The Journal of Physical Chemistry C* 2019, 123, (21), 13208-13218. [DOI](#)
6. Carrillo R. J., **Warren K. J.**, and Scheffe J. R. "Experimental Framework for Evaluation of the Thermodynamic and Kinetic Parameters of Metal-Oxides for Solar Thermochemical Fuel Production." *Journal of Solar Energy Engineering* 2019, 141, (2), 021007-021017. [DOI](#)
5. **Warren K. J.** and Scheffe J. R. "Kinetic Insights into the Reduction of Ceria Facilitated via the Partial Oxidation of Methane." *Materials Today Energy* 2018, 9, 39-48. [DOI](#)
4. Welte M., **Warren K. J.**, Scheffe J. R., and Steinfeld A. "Combined Ceria Reduction and Methane Reforming in a Solar-Driven Particle-Transport Reactor." *Industrial & Engineering Chemistry Research* 2017, 56, (37), 10300-10308. [DOI](#)
3. **Warren K. J.**, Reim J., Randhir K., Greek B., Carrillo R. J., Hahn D. W., and Scheffe J. R. "Response to Rebuttal to "Theoretical and Experimental Investigation of Solar Methane Reforming through the Nonstoichiometric Ceria Redox Cycle"." *Energy Technology* 2017, 5, (11), 2153-2155. [DOI](#)
2. **Warren K. J.**, Reim J., Randhir K., Greek B., Carrillo R. J., Hahn D. W., and Scheffe J. R. "Theoretical and Experimental Investigation of Solar Methane Reforming through the Nonstoichiometric Ceria Redox Cycle." *Energy Technology* 2017, 5, (11), 2138-2149. [DOI](#)
1. Palumbo R., Korenko M., Larson C., Venstrom L. J., Duncan S., Nudehi S., Schoer J., Toberman J., Prusinski W., Johnson D., Robinson B., Barkley S., **Warren K. J.**, Diver R., Šimko F., Boča M. "Thermal Electrolytic

Production of Mg from MgO: Reflections on Commercial Viability." *Magnesium Technology* 2015, 1, 43-48.
[DOI](#)

Patents

3. Tran J. T., **Warren K. J.**, and Weimer A. W. "Pressure Swing Redox Processing to Split H₂O/CO₂." U.S. Provisional Pat. Ser. No. 63/410,177, filed September 26, 2022.
2. **Warren K. J.**, Tran J. T., and Weimer A. W. "Method and Reactor System for Splitting Water and/or Carbon Dioxide." U.S. Provisional Pat. Ser. No. 63/270,030, filed October 20, 2021.
1. **Warren K. J.** and Scheffe J. R. "Facile CO₂ Sequestration and Fuel Production from Methane." U.S. Provisional Pat. Ser. No. 62/699,932, filed July 18, 2018.

Presentations

36. **Warren K. J.**, Taylor L., Tran J. T., and Weimer A. W. "Solar-Thermal Processing to Split Water and/or Carbon Dioxide via a Near-Isothermal, Pressure-Swing Redox Cycle." Abstract for conference presentation, *AIChE Annual Meeting, Sustainable Pathways to Clean Hydrogen and Synthetic Fuels IV*, Orlando, Florida, November 2023.
35. Hauck J., **Warren K. J.**, Wang B., Harshberger S., Hubler M. H., Broerman A., Champ T., Gump C., and Weimer A. W. "Tuning Particle ALD Catalysts for Methane Pyrolysis." Abstract for conference presentation, *AIChE Annual Meeting, Recent Developments in Fuel Processing for Hydrogen Production II*, Orlando, Florida, November 2023.
34. Loehde-Woolard H., Evans B., **Warren K. J.**, and Weimer A. W. "Supported-Amine Adsorbent Generation via Particle Molecular Layer Deposition for Direct Air Capture of CO₂." Abstract for conference presentation, *AIChE Annual Meeting, Particle Engineering Applications: Additive Manufacturing, Energy Storage and Carbon Capture*, Orlando, Florida, November 2023.
33. Odak K., **Warren K. J.**, and Weimer A. W. "Physical Activation of Microcrystalline Cellulose for High-Surface Area Carbon Materials." Abstract for conference presentation, *AIChE Annual Meeting, Modification, Functionalization and Processing of Biomaterials*, Orlando, Florida, November 2023.
32. Hauck J., **Warren K. J.**, Hubler M. H., Wang B., Harshberger S., Broerman A., Gump C., Champ T., and Weimer A. W. "Catalytic Methane Pyrolysis for Hydrogen and Carbon Nanofiber Co-Product." Abstract for poster presentation, *AIChE Annual Meeting, Particle Technology Forum*, Orlando, Florida, November 2023.
31. Loehde-Woolard H., Evans B., **Warren K. J.**, and Weimer A. W. "Materials for Direct Air Capture of CO₂ via Particle Molecular Layer Deposition." Abstract for poster presentation, *AIChE Annual Meeting, Sustainability Science and Engineering, Biorefineries, and Energy*, Orlando, Florida, November 2023.
30. Taylor L., **Warren K. J.**, and Weimer A. W. "Scalable Synthesis and Characterization of Active Iron Aluminate Material for Solar Thermal Water Splitting." Abstract for undergraduate student poster presentation, *AIChE Annual Meeting, Catalysis and Reaction Engineering (CRE) Division*, Orlando, Florida, November 2023.
29. Evans, B., Loehde-Woolard H., **Warren K. J.**, Weimer A. W., and Wallace M. "Design and Construction of a Vibrating Fluidized Bed Reactor for Particle Atomic and Molecular Layer Deposition." Abstract for undergraduate student poster presentation, *AIChE Annual Meeting, Catalysis and Reaction Engineering (CRE) Division*, Orlando, Florida, November 2023.

28. **Warren K. J.**, Tran J. T., and Weimer A. W. "Solar Thermochemical Water Splitting Using Iron Aluminates." Abstract for conference presentation, *AIChE Annual Meeting, Sustainable Pathways to Clean Hydrogen and Synthetic Fuels I*, Phoenix, Arizona, November 2022.
27. Tran J. T., **Warren K. J.**, and Weimer A. W. "Pressure Swing Redox Processing to Split Water and/or Carbon Dioxide." Abstract for conference presentation, *AIChE Annual Meeting, Concentrated Solar Power Generation and Chemical Processing I*, Phoenix, Arizona, November 2022.
26. Hauck J., **Warren K. J.**, Li L., Hubler M. H., Wang B., Broerman A., Harshberger S., Champ T., and Weimer A. W. "Methane Decarbonization for Hydrogen and Sequestered Carbon Nanofiber Co-Product." Abstract for conference presentation, *AIChE Annual Meeting, Sustainable Pathways to Clean Hydrogen and Synthetic Fuels IV*, Phoenix, Arizona, November 2022.
25. Tran J. T., **Warren K. J.**, and Weimer A. W. "Impact of Pressure on Fuel Production Via Redox." Abstract for poster presentation, *AIChE Annual Meeting, Catalysis and Reaction Engineering (CRE) Division*, Phoenix, Arizona, November 2022.
24. Hauck J., **Warren K. J.**, Li L., Hubler M. H., Wang B., Broerman A., Harshberger S., Champ T., and Weimer A. W. "Methane Pyrolysis for Hydrogen and Carbon Nanofibers." Abstract for poster presentation, *AIChE Annual Meeting, Catalysis and Reaction Engineering (CRE) Division*, Phoenix, Arizona, November 2022.
23. Harshberger S., Hauck J., Loehde-Woolard H., **Warren K. J.**, Broerman A., Champ T., and Weimer A. W. "Investigation of Particle Atomic Layer Deposition of Metal Precursor on Silica Supports for Catalytic Decomposition of Methane." Abstract for undergraduate student poster presentation, *AIChE Annual Meeting, Catalysis and Reaction Engineering (CRE) Division*, Phoenix, Arizona, November 2022.
22. **Warren K. J.** "Thermochemical Syngas Production." Abstract for conference presentation, *Global Syngas Technologies Annual Conference, Innovative Syngas Production*, Tucson, Arizona, October 2022.
21. **Warren K. J.**, Tran J. T., and Weimer A. W. "Solar Thermochemical Water Splitting Using Iron Aluminates." Abstract for conference presentation, *SolarPACES 2022, Solar Fuels and Chemical Commodities*, Albuquerque, New Mexico, September 2022.
20. **Warren K. J.** and Weimer A. W. "Solar-thermal Splitting of Water and CO₂ to Syngas – The Path Forward." Abstract for invited seminar, *Chevron Process Research Seminar Series*, Virtual, September 2022.
19. **Warren K. J.** "Sunlight, Water, Carbon Dioxide, and Rust: Ingredients for the Transition to a Sustainable Energy Future." Abstract for invited seminar, *University of Colorado Boulder, Fall 2021 ChBE Postdoc Seminar Series*, Boulder, Colorado, November 2021.
18. **Warren K. J.**, Tran J. T., and Weimer A. W. "Thermodynamic Characterization of Doped Spinel for Thermochemical Fuel Production." Abstract for conference presentation, *AIChE Annual Meeting, Perovskites, spinels, energy conversion, modeling of these systems*, Boston, Massachusetts, November 2021.
17. **Warren K. J.**, Tran J. T., Rowe S. C., and Weimer A. W. "Solar Thermochemical Water Splitting Using Iron-Aluminate Spinel." Abstract for conference presentation, *AIChE Annual Meeting, Concentrated Solar Power Generation and Chemical Processing I*, Boston, Massachusetts, November 2021.
16. Tran J. T., Wilson C., **Warren K. J.**, and Weimer A. W. "Kinetic Investigation of Iron Aluminate-Based Materials for Fuel Production." Abstract for conference presentation, *AIChE Annual Meeting, Concentrated Solar Power Generation and Chemical Processing I*, Boston, Massachusetts, November 2021.

15. English M., **Warren K. J.**, and Weimer A. W. "Utilizing Atomic Layer Deposition to Influence Selectivity for Ni Reverse Water Gas Shift Catalysts." Abstract for conference presentation, *AIChE Annual Meeting, Novel Nanoparticles and Nanostructured Catalysis for Energy and Environmental Applications*, Boston, Massachusetts, November 2021.
14. Hauck J., **Warren K. J.**, Sowell G., Hubler M. H., Champ T., Broerman A., Li L., Wang B., Anderson R. L., and Weimer A. W. "Modular Processing of Flare Gas for Carbon Nanoproducts." Abstract for conference presentation, *AIChE Annual Meeting, Carbon, Coal and Biomass Management*, Boston, Massachusetts, November 2021.
13. Tran J. T., Wilson C., **Warren K. J.**, and Weimer A. W. "Thermochemical Gas Splitting Using Iron Aluminate-Based Materials." Abstract for poster presentation, *AIChE Annual Meeting, Fuels and Petrochemicals Division*, Boston, Massachusetts, November 2021.
12. English M., **Warren K. J.**, and Weimer A. W. "Influencing Selectivity of Ni Reverse Water Gas Shift Catalysts Using Atomic Layer Deposition." Abstract for poster presentation, *AIChE Annual Meeting, Catalysis and Reaction Engineering (CRE) Division*, Boston, Massachusetts, November 2021.
11. Hauck J., **Warren K. J.**, Sowell G., Hubler M. H., Champ T., Broerman A., Li L., Wang B., Anderson R. L., and Weimer A. W. "Modular Processing of Flare Gas for Hydrogen and Carbon Nanofibers." Abstract for poster presentation, *AIChE Annual Meeting, Process Development*, Boston, Massachusetts, November 2021.
10. **Warren K. J.**, Tran J. T., Rowe S. C., and Weimer A. W. "Solar Thermochemical Water Splitting Using Iron-Aluminate Spinel." Abstract for conference presentation, *11th SOLARIS, International Symposium on Solar Energy and Efficient Energy Usage*, Virtual, September 2021.
9. **Warren K. J.**, Tran J. T., and Weimer A. W. "A Thermochemical Study of Doped-Spinels: A Candidate Class of Redox Intermediates for Isothermal Water Splitting." Abstract for invited conference presentation, *AIChE Annual Meeting, Symposium on Solar Power and Chemical Systems in Honor of Prof. Aldo Steinfeld I*, Virtual, November 2020.
8. Tran J. T., Wilson C., **Warren K. J.**, and Weimer A. W. "Experimental Comparison of Metal Oxide Materials for Solar Thermal Water Splitting." Abstract for poster presentation, *AIChE Annual Meeting, Fuels and Petrochemicals Division*, Virtual, November 2020.
7. **Warren K. J.** and Scheffe J. R. "Syngas Production via Solar Chemical-Looping Dry Reforming of Methane over Ceria." Abstract for conference presentation, *ASME 13th International Conference on Energy Sustainability, Thermochemical Reactors*, Bellevue, Washington, July 2019.
6. **Warren K. J.** and Scheffe J. R. "Kinetic Modeling of Methane-Driven Ceria Reduction." Abstract for conference presentation, *ASME 12th International Conference on Energy Sustainability, Materials Chemistry*, Lake Buena Vista, Florida, June 2018.
5. **Warren K. J.** and Scheffe J. R. "Kinetic Insights into Methane-Driven Ceria Reduction." Abstract for conference presentation, *ASME 12th International Conference on Energy Sustainability, Materials Chemistry*, Lake Buena Vista, Florida, June 2018.
4. **Warren K. J.** and Scheffe J. R. "Factors Governing the Partial Oxidation of Methane over Ceria." Abstract for poster presentation, *Renewable Energy Systems and Sustainability Conference*, Lakeland, Florida, August 2017.

3. **Warren K. J.**, Hahn D. W., and Scheffe J. R. "Investigation of Solar Methane Reformation via the Nonstoichiometric Ceria Redox Cycle." Abstract for poster presentation, *Soiling Mitigation for Solar Energy & Innovations in Concentrating Solar Power*, Gainesville, Florida, December 2016.
2. **Warren K. J.**, Randhir K., Greek B., Reim J., Hahn D. W., and Scheffe J. R. "Investigation of Methane Reformation via the Nonstoichiometric Ceria Redox Cycle." Abstract for conference presentation, *AIChE Annual Meeting, Solar Thermochemical Fuels I*, San Francisco, California, November 2016.
1. Scheffe J. R., **Warren K. J.**, Reim J., Carrillo R. J., Hahn D. W., Greek B., and Randhir K. "Driving the Solar Thermal Reforming of Methane via a Nonstoichiometric Ceria Redox Cycle." Abstract for conference presentation, *Nonstoichiometric Compounds VI, Nonstoichiometric Oxides for Solar Thermochemistry*, Santa Fe, New Mexico, September 2016.