

Jaeyun Moon, Ph.D.

CONTACT INFORMATION

Assistant Professor, Center for Energy Research
Department of Mechanical Engineering
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RESEARCH INTERESTS

- Thermoelectric Materials and Device
- Design of Solar Absorbing Materials for High Temperature Solar Thermal Technologies
- Advanced Materials for Environmental Applications (adsorbents, photocatalysts)

EDUCATION

- Ph.D., Materials Science and Engineering, University of California-San Diego, USA, 2014
- Dissertation: Nanomaterials Design for Thermal Energy Conversion Technologies
 - Advisors: Prof. Sungho Jin, Prof. Renkun Chen
- M.S, Materials and Metallurgical Engineering, Hanyang University, South Korea, 2001
- Thesis: The correlation between thermal activation/microstructure changes and phase transformation behaviors of plasma sprayed partially stabilized zirconia coatings
 - Advisor: Prof. Changhee Lee
- B.S, Materials and Metallurgical Engineering, Hanyang University, South Korea, 1999

ACADEMIC/PROFESSIONAL APPOINTMENTS

- Aug. 2014 – Present: Assistant Professor, Dept. of Mechanical Engineering,
University of Nevada, Las Vegas, NV
- Sep. 2009 – Jul. 2014: Research Assistant, Materials Science and Engineering,
University of California, San Diego, CA
- Jan. 2007 – Jun. 2009: Senior Engineer, Memory Division,
Samsung Electronics, South Korea
- Jan. 2003 – Dec. 2006: Engineer, Memory Division, Samsung Electronics, South Korea
- Mar. 2001 – Dec. 2002: Assistant Engineer, Memory Division,
Samsung Electronics, South Korea
- Mar. 1999 – Feb. 2001: Research Assistant, Hanyang University, South Korea

PEER-REVIEWED JOURNAL ARTICLES (* Corresponding author)

Published/In Press

18. Soroosh Mortazavian, Tammy Jones-Lepp, Jee-Hwan Bae, Dongwon Chun, Erick R. Bandala, and **Jaeyun Moon***, "Heat-treated biochar impregnated with zero-valent iron nanoparticles for organic contaminants removal from aqueous phase: material characterizations and kinetic studies" *Journal of Industrial and Engineering Chemistry*, In Press (2019). <https://doi.org/10.1016/j.jiec.2019.03.041>
17. Hyeunhwan An, Matthew Pusko, Dongwon Chun, **Jaeyun Moon***, "In-situ synthesis of flexible hybrid composite films for improved thermoelectric performance" *Chemical Engineering Journal* 357, 547-558 (2019). <https://doi.org/10.1016/j.cej.2018.09.200>
16. Soroosh Mortazavian, Ali Saber, Nicolas Wong, Jacimaria Batista, Daniel Gerrity, Kwang J. Kim, **Jaeyun Moon***, "Synthesis, characterization, and kinetic study of activated carbon modified by polysulfide rubber coating for aqueous hexavalent chromium removal" *Journal of Industrial and Engineering Chemistry* 69, 196-210 (2019). <https://doi.org/10.1016/j.jiec.2018.09.028>
15. Soroosh Mortazavian, Hyeunhwan An, Dongwon Chun, **Jaeyun Moon***, "Activated carbon impregnated by zero-valent iron nanoparticles (AC/nZVI) optimized for simultaneous adsorption and reduction of aqueous hexavalent chromium: Material characterizations and kinetic studies" *Chemical Engineering Journal* 353, 781-795 (2018). <https://doi.org/10.1016/j.cej.2018.07.170>
14. Dale E. Karas, Jongmin Byun, Cilla Jose, Samuel Tam, **Jaeyun Moon***, "Copper-oxide spinel absorber coatings for high-temperature concentrated solar power systems" *Solar Energy Materials and Solar Cells* 182 321-330 (2018). <https://doi.org/10.1016/j.solmat.2018.03.025>
13. Hyeunhwan An, Dale Karas, Byung-Wook Kim, Sarah Trabia, **Jaeyun Moon***, "Flexible n-type thermoelectric composite films with enhanced performance through interface engineering and post-treatment" *Nanotechnology* 29 (27) 275403 (2018). <https://doi.org/10.1088/1361-6528/aabee6>
12. Zheng, Jianlin, Matthew C. Wingert, **Jaeyun Moon**, Renkun Chen*, "Simultaneous specific heat and thermal conductivity measurement of individual nanostructures" *Semiconductor Science and Technology* 31, no. 8: 084005 (2016). <http://dx.doi.org/10.1088/0268-1242/31/8/084005>
11. **Jaeyun Moon**, Tae Kyoung Kim, Bryan VanSaders, Chulmin Choi, Zhaowei Liu*, Sungho Jin*, Renkun Chen*, "Black Oxide Nanoparticles as Durable Solar Absorbing Material for High-Temperature Concentrating Solar Power System" *Solar Energy Materials and Solar Cells*, 134 417-424 (2015). <https://doi.org/10.1016/j.solmat.2014.12.004>
10. Tae Kyoung Kim, Bryan VanSaders, **Jaeyun Moon**, Taewoo Kim, Chin-Hung Liu, Jirapon Khamwannah, Renkun Chen*, Zhaowei Liu*, Sungho Jin*, "Tandem Structured Spectrally Selective Coating Layer of Copper Oxide Nanowires Combined with Cobalt Oxide Nanoparticles" *Nano Energy*, 11 247-259 (2014). <https://doi.org/10.1016/j.nanoen.2014.10.018>
9. **Jaeyun Moon**, Dylan Lu, Bryan VanSaders, Tae Kyoung Kim, Seong Deok Kong, Sungho Jin*, Renkun Chen*, Zhaowei Liu*, "High Performance Multi-scaled Nanostructured Spectrally Selective Coating for Concentrated Solar Power" *Nano Energy*, 8 238-246 (2014). <https://doi.org/10.1016/j.nanoen.2014.06.016>
8. Tae Kyoung Kim, **Jaeyun Moon**, Bryan VanSaders, Dong Won Chun, Jae-Young Jung, Gang Wang, Renkun Chen, Zhaowei Liu, Yu Qiao, Sungho Jin*, "Si-Si Boride Core-Shell Nanoparticles with Improved Oxidation Resistance for High Temperature Applications" *Nano Energy*, 9 32-40 (2014). <https://doi.org/10.1016/j.nanoen.2014.06.021>
7. Edward Dechaumphai, Dylan Lu, Jimmy J. Kan, **Jaeyun Moon**, Eric E. Fullerton*, Zhaowei Liu*, Renkun Chen*, "Ultralow Thermal Conductivity of Multilayers with Highly Dissimilar Debye Temperatures" *Nano Letters* 14 (5) 2448-2455 (2014). <dx.doi.org/10.1021/nl500127c>

6. Edward Dechaumphai, Joseph L Barton, Joseph R Tesmer, Jaeyun Moon, Yongqiang Wang, George R Tynan, Russell P Doerner, Renkun Chen*, "Near-Surface Thermal Characterization of Plasma Facing Components Using the 3-omega Method", *Journal of Nuclear Materials* 455(1) 56-60 (2014). <https://doi.org/10.1016/j.jnucmat.2014.03.059>
5. **Jaeyun Moon**, Ji-Hun Kim, Zack C.Y. Chen, Jie Xiang*, Renkun Chen*, "Gate-Modulated Thermoelectric Power Factor of Hole Gas in Ge–Si Core–Shell Nanowires", *Nano Letters*, 13 1196–1202 (2013). [dx.doi.org/10.1021/nl304619u](https://doi.org/10.1021/nl304619u)
4. P K Nguyen, K H Lee, **J Moon**, S I Kim, K A Ahn, L H Chen, S M Lee, R K Chen, S Jin, A E Berkowitz*, "Spark erosion: a high production rate method for producing Bi_{0.5}Sb_{1.5}Te₃ nanoparticles with enhanced thermoelectric performance" *Nanotechnology* 23 415604 (2012). <http://dx.doi.org/10.1088/0957-4484/23/41/415604>
3. Matthew C. Wingert, Zack C. Y. Chen, Edward Dechaumphai, **Jaeyun Moon**, Ji-Hun Kim, Jie Xiang*, Renkun Chen*, "Thermal Conductivity of Ge and Ge–Si Core–Shell Nanowires in the Phonon Confinement Regime" *Nano Letters* 11 5507–5513 (2011). [dx.doi.org/10.1021/nl203356h](https://doi.org/10.1021/nl203356h)
2. **Jaeyun Moon**, Hanshin Choi, Hyungjun Kim, Changhee Lee*, "The effects of heat treatment on the phase transformation behaviors of plasma-sprayed stabilized zirconia thermal barrier coating" *Surface and coatings technology*, 155 1-10 (2002). [https://doi.org/10.1016/S0257-8972\(01\)01661-9](https://doi.org/10.1016/S0257-8972(01)01661-9)
1. **Jaeyun Moon**, Hanshin Choi, Changhee Lee*, "Cooling rate effect on phase transformation of plasma sprayed partially stabilized zirconia" *Journal of materials science letters* 20, 1611-1613 (2001).

BOOK CHAPTERS

2. **Jaeyun Moon**, Erick R Bandala, "Chapter 6. Effect of Nanoparticles on the Growth and Development of Crops for Indoor Agriculture Applications" in *Agricultural Nanobiotechnology*, edited by Fernando López-Valdez and Fabián Fernández-Luqueño, Springer, Berlin, Germany, ISBN 978-3-319-96718-9 (2018). <https://doi.org/10.1007/978-3-319-96719-6>
1. Edward Dechaumphai, **Jaeyun Moon**, Matthew C. Wingert, Renkun Chen, "Chapter 9. Phononic and Electronic Engineering in Nanowires for Enhanced Thermoelectric Performance" in *Semiconductor Nanowires: From Next-Generation Electronics to Sustainable Energy* edited by Wei Lu and Jie Xiang, The Royal Society of Chemistry, London, UK, ISBN 978-1-84973-815-6 (2014). <http://dx.doi.org/10.1039/9781782625209-00054>

REFEREED PAPERS in CONFERENCE PROCEEDING

2. Robabeh Jazaei, Moses Karakouzian*, Brendan O'Toole, **Jaeyun Moon**, Samad Gharehdaghi, "Failure Mechanism of Cementitious Nanocomposites Reinforced by Multi-Walled and Single-Walled Carbon Nanotubes Under Splitting Tensile Test" *ASME 2018 International Mechanical Engineering Congress and Exposition* (2018).
1. Chang Huhn Lee, **Jae Yun Moon**, Kyu Whan Chong, Hyung Dong Woo, Seog Hee Kang, Kyung Seok Oh, Seok Woo Hong, Jae Cheol Lee*, "Novel Methods for Identification and Analysis of Various Yield Problems in Semiconductor Manufacturing" *Advanced Semiconductor Manufacturing Conference*, 185-190 (2006).

CONFERENCE PRESENTATIONS, POSTERS AND INVITED SEMINARS

Invited Seminars

5. **Jaeyun Moon**, "Materials Solutions for Energy and Environmental Problems", at the University of Nevada, Reno, NV, USA, April 19, 2019.
4. **Jaeyun Moon**, "Materials Solutions for Environmental Problems: Nanomaterials for Water Treatment", at the University of California, Riverside, CA, USA, November 30, 2018.
3. **Jaeyun Moon**, "Materials Solutions for Environmental Problems: Nanomaterials for Water Treatment", at the University of Utah, UT, USA, April 13, 2018.
2. **Jaeyun Moon**, "Materials for Energy and Environmental Sustainability", at the Korean Institute of Science and Technology (KIST), in Seoul, South Korea, September 8, 2017.
1. **Jaeyun Moon**, "Efficient Black Oxide Coatings for Concentrated Solar Receivers" at *TMS 2017*, in San Diego, CA, USA, March 1, 2017.

Oral Presentations

20. Kaleab Ayalew, Xavier Morgan-Lange, **Jaeyun Moon**, "Microstructural effects on photocatalytic performance in Bi₂MoO₆/Ag₃PO₄ Z-Scheme systems, *ACS National Meeting* at Orlando, FL, USA, March 31 – April 4, 2019.
19. Erick Bandala, Soroosh Mortazavian, **Jaeyun Moon**, Helga Sato "Removal of Chlorinated Solvents in Groundwater Using Immobilized Nano Zero-Valent Iron for Advanced Oxidation Processes" *2018 Groundwater Week* at Las Vegas, NV, USA, December 3, 2018.
18. **Jaeyun Moon**, "Feasible strategies in flexible hybrid films for improved thermoelectric performance" *ACS Southeastern Regional Meeting* at Augusta, GA, USA, October 31 - November 3, 2018.
17. Soroosh Mortazavian, **Jaeyun Moon**, "Activated carbon impregnated by zero-valent iron nanoparticles optimized for adsorption and reduction of aqueous hexavalent chromium" *ACS Southeastern Regional Meeting* at Augusta, GA, USA, October 31 - November 3, 2018.
16. Soroosh Mortazavian, **Jaeyun Moon** "Efficient removal of aqueous hexavalent chromium using polysulfide rubber-coated activated carbon", *ACS Southeastern Regional Meeting* at Augusta, GA, USA, October 31 - November 3, 2018.
15. Robabeh Jazaei, Moses Karakouzian*, Brendan O'Toole, **Jaeyun Moon**, Samad Gharehdaghi, "Failure Mechanism of Cementitious Nanocomposites Reinforced by Multi-Walled and Single-Walled Carbon Nanotubes under Splitting Tensile Test" *International Mechanical Engineering Congress & Expo* at Pittsburgh, PA, USA, September, 2018.

14. Robabeh Jazaei, Moses Karakouzian*, Brendan O'Toole, Samad Gharehdaghi, **Jaeyun Moon** "Energy Absorption of Cementitious Composites Incorporating Carbon Nanotubes Subjected to Low-Velocity Impact Tests", *ASCE: Forensic Engineering 8th Congress* at Austin, Texas, USA, September 2018.
13. Dale E. Karas, **Jaeyun Moon**, "Nanomaterial Synthesis Characterization of Intrinsic Spectrally-Selective Solar Absorber Coatings" *Materials Research Society 2018 Spring Meeting* at Phoenix, AZ, USA, April 2-6, 2018.
12. Robabeh Jazaei, Moses Karakouzian*, Brendan O'Toole, **Jaeyun Moon**, Samad Gharehdaghi, "Effect of Dispersion and Quality Control of Multi-Walled Carbon Nanotubes on Cementitious Nanocomposite Subjected to Impact Load", *2018 IRF Conference & Exp.* at Las Vegas, Nevada, USA, March, 2018.
11. Dale E. Karas, **Jaeyun Moon**, "Scatter Function Determination of High-Temperature, Inorganic Oxide Solar Absorber Coating Morphology" *255th ACS National Meeting*, March, 18, 2018.
10. Soroosh Mortazavian, **Jaeyun Moon** (Poster) "Enhanced Aqueous Hexavalent Chromium Removal Using Polysulfide Rubber-modified Activated Carbon" *Waste Management Symposia 2018* at Phoenix, AZ, March 18-22, 2018.
9. Robabeh Jazaei, Moses Karakouzian*, Brendan O'Toole, **Jaeyun Moon**, Samad Gharehdaghi, (Poster) "Effect of Multi-Walled, Single-Walled, and Hybrid Carbon Nanotubes on Impact and Tensile Strength of Cementitious Composites", *ASME/IMECE Conference, 2017*.
8. **Jaeyun Moon**, Hyeunhwan An, Matthew Pusko, "Interface Engineering in Flexible Hybrid Films for Improved Thermoelectric Performance", *International Conference on Thermoelectrics (ICT)* at Pasadena, CA, USA, August 2, 2017.
7. Hyeunhwan An, **Jaeyun Moon**, "Remote doping-based approach to thermoelectric performance enhancement in n-type flexible Nanocomposites", *Materials Research Society (MRS) 2017 Spring Meeting* at Phoenix, AZ, USA, 2017.
6. Dale Karas, **Jaeyun Moon** "A Spectrally-Selective Copper-Oxide Spinel Absorber Coatings for High-Temperature Concentrated Solar Power Systems", *Materials Research Society (MRS) 2017 Spring Meeting* at Phoenix, AZ, USA, 2017.
5. **Jaeyun Moon**, Dylan Lu, Seong Doek Kong, Sungho Jin, Zhaowei Liu, Renkun Chen "Durable Coatings for High Temperature Concentrating Solar Power" *IMECE 2013* at San Diego, CA, USA, November 18, 2013.
4. **Jaeyun Moon**, Ji-Hun Kim, Zack C.Y. Chen, Jie Xiang and Renkun Chen, "Gate Modulated Thermoelectric Power Factor of Core/Shell Nanowires", *Materials Research Society (MRS) 2012 Spring Meeting*, at San Francisco, CA, USA, April 12, 2012.
3. **Jaeyun Moon**, Ji-Hun Kim, Jie Xiang and Renkun Chen, "Gate Modulated Thermoelectric Power Factor of Core/Shell Nanowires" *UKC 2012*, at Los Angeles, CA, USA, August 11, 2012.
2. **J.Y. Moon**, H.S.Choi, C.H.Lee, The effects of the thermal cycles on the phase transformation of the APS partially stabilized zirconia TBC, *2001 International Nano Crystals Ceramics Forum and International Symposium on Intermaterials*, KACG, at Hanyang University, Seoul, South Korea, May 2001.
1. **J.Y. Moon**, H.S.Choi, C.H.Lee, The Cooling Rate Effects On Phase Transformation of ZrO₂ Base Thermal Barrier Coating Coated By APS, *2000 International Nano Crystals Ceramics Forum and International Symposium on Intermaterials*, at Hanyang University, Seoul, South Korea, June 2000.

Poster Presentations

8. Kaleab Ayalew, Xavier Morgan-Lange, **Jaeyun Moon**, "Microstructural effects on photocatalytic performance in Bi₂MoO₆/Ag₃PO₄ Z-Scheme systems, *Materials Research Society (MRS) Spring Meeting* at Phoenix, AZ, April 22 – April 26, 2019.
7. Matthew Pusko, David Zagaceta, **Jaeyun Moon**, "Study on Mechanical Behavior of Thermoelectric Bi₂Te₃/CNTs Composite Films" *Materials Research Society (MRS) Spring Meeting* at Phoenix, AZ, USA, April 2-6, 2018.
6. Soroosh Mortazavian, **Jaeyun Moon**, "Nano-scale zero valent iron particles supported on granular activated carbon for enhanced aqueous Cr(VI) removal: Material characterization and kinetics study". *American Chemistry Society (ACS) Poster Competition* at Nevada State College, Nevada, USA, November, 2017.
5. Cilla Jose, Dale E. Karas, **Jaeyun Moon** "High Temperature Materials for Solar Receivers", *Solar-Energy-Water-Environment NEXUS in Nevada Annual Meeting* at Las Vegas, NV, USA, March 2017.
4. **Jaeyun Moon**, Matthew Pusko, Hyeunhwan An, "Lightweight Flexible Thermoelectric Power Generator for Military" *2017 Defense Innovation Technology Acceleration Challenges*, at Tampa, FL, USA, October 3, 2017.
3. **Jaeyun Moon**, Hyeunhwan An, Dale E. Karas, "Annealing effect on Thermoelectric Power Factor of n-type Thermoelectric Composite film", *Materials Research Society (MRS) Fall 2016 Meeting*, at Boston, MA, USA, November 29, 2016.
2. Cilla Jose, Dale E. Karas, **Jaeyun Moon**, "Spectrally-Selective Copper-Oxide Spinel Absorber Coatings for High-Temperature Concentrated Solar Power Systems" at the *ACS-Annual Undergraduate/Graduate Student Poster Competition Exposition* at Nevada State College (NSC), Las Vegas, NV, USA, November 19, 2016. (1st place)
1. Dale E. Karas, Hyeunhwan An, **Jaeyun Moon**, "Annealing Effect on Thermoelectric Power Factor of n-Type Thermoelectric Composite Film, Part I: Fabrication of n-type Materials with Bi₂Te₃ nanowires" at the *ACS-Annual Undergraduate/Graduate Student Poster Competition Exposition* at Nevada State College (NSC), Las Vegas, NV, USA, November 19, 2016.

INTELLECTUAL PROPERTIES

2. Sungho Jin, Renkun Chen, Zhaowei Liu, **Jaeyun Moon**, Tae Kyoung Kim, Bryan Van Sadlers; "Solar energy absorbing coatings and methods of fabrication"; Patent No.: US 10,184,051 B2; Date of Patent: Jan. 22, 2019; Issued Patent
1. Sungho Jin, Chulmin Choi, **Jaeyun Moon**, Taekyoung Kim, Ratneshwar Lal, Kyungjun Hwang, Gunwoo Kim, Youngjin Kim; "Sunlight reflecting materials and methods of fabrication", US20170226347A1; Provisional Patent

RESEARACH PROJECTS (Fall 2014 – Spring 2019)

16. Assessment of Power Generation Performance on Flexible Thermoelectric Devices; Korean Institute of Energy Research (KIER) (2019-**Present**), as a Sole Principal Investigator
15. Soft-Robots Housing Smart Preventive IR-Based Inspection System; Department of Energy (DOE) thru Savannah River Nuclear Solutions (2017-**Present**), as a Co-Principal Investigator
14. Research Infrastructure Development for Microstructure-Oriented Manufacturing of Thermoelectric Materials for Space Power Applications; NASA (2018-2019, **Completed**), as a Co-Principal Investigator
13. Management of the Sodium Sulfate Waste Stream at the Tesla Giga Factory Assessment, Year II; Tesla Motors (2018-2019, **Completed**), as a Sole Principal Investigator
12. Chlorinated Solvents Remediation by Photo-Assisted Advanced Oxidation Process with Novel Nanomaterials; Department of Energy (DOE) thru Savannah River Nuclear Solutions (2017-2018, **Completed**), as a Principal Investigator
11. Management of the Sodium Sulfate Waste Stream at the Tesla Giga Factory Assessment; Tesla Motors (2017-2018, **Completed**), as a Co-Principal Investigator
10. Assessment, purification, and reuse of Tesla Gigafactory Wastewater stream; Tesla Motors (2016-2017, **Completed**), as a Co-Principal Investigator
9. In-Situ and ex-situ Hexavalent Chromium Treatment Using Coagulants and Special Materials; Department of Energy (DOE) thru Savannah River Nuclear Solutions (2016-2017, **Completed**), as a Co-Principal Investigator
8. 3D Additive Manufacturing Capability for Space Applications: Research Infrastructure Development; National Aeronautics and Space Administration (NASA) EPSCoR (2016-2014, **Completed**), as a Principal Investigator
7. Chromium Contamination Remediation using Activated Carbon coated with Polysulfide Rubber (PSR) and Zeolites coated with Surfactants; Department of Energy (DOE) thru Savannah River Nuclear Solutions (2015-2016, **Completed**), as a Co-Principal Investigator
6. The development of n-type Hybrid Thermoelectric Material with High Performance; Hyundai Motors (2015-2016, **Completed**), as a Principal Investigator
5. Additive Manufacturing (AM) Workshop, National Aeronautics and Space Administration (NASA) EPSCoR (2015-2016, **Completed**), as a Co-Principal Investigator
4. Technical Support for Corrosion Prevention & Control, Department of Energy (DOE) (2015, **Completed**), as a Co-Principal Investigator
3. Nanomaterials for Water Purification by Solar Heat Collection and Localization, National Science Foundation EPSCoR Seed Grant (2015-2016, **Completed**), as a Principal Investigator
2. Low cost high performance nanostructured spectrally selective coating; Department of Energy (DOE) SunShot Initiative (2012~2014, **Completed**), as a Research Assistant
1. Novel Thermoelectric Materials for Heat Management in High Performance Electronics and Energy Conversion; Samsung Advanced Institute of Technology (2009~2011, **Completed**), as a Research Assistant

GRADUATE STUDENT/POST-DOC ADVISING (Fall 2014 – Spring 2019)

		Remarks
Number of PhD students on dissertation (Committee Chair)	4	Suraj Venkat Pochampally: expected graduation in Spring 2023 Matthew Pusko: expected graduation in Spring 2021 Soroosh Mortazavian: expected graduation in Spring 2020 Dale Karas: <u>graduated in</u> Spring 2018, Sandia National Lab.
Number of MS students on thesis (Committee Chair)	2	Kaleab Ayalew: expected graduation in Summer 2019, continue Ph.D. Jack Cheney: <u>graduated in</u> Spring 2016, Savannah River National Lab.
Number of Postdocs	2	Dr. Hyeunhwan An (2015–2018), Tesla Research Center Dr. Jongmin Byun (2017-2018), Assistant Professor, Seoul National University of Science and Technology, South Korea
Number of MS/PhD students on dissertation (Committee Member)	14	Melissa Matthes: MS, COE, ME, graduated in Summer 2016 Mayra Alejandra Sarria Cortes: MS, COE, CEE, graduated in Fall 2016 Robabeh Jazaei: PhD, COE, CEE, graduated in 2018 Sarah Trabia: PhD, COE, ME, graduated in 2018 Jessica Deberardinis: PhD, COE, ME, graduated in 2019 Nicolas Wong, MS, COE, CEE, graduated in 2019 Ana Luiza De Araujo Silva, MS, COS, WRM, graduated in 2018 Kara Geremia: MS, COS, CHEM Sae Hui Lee: Ph., COS, CHEM Ahdee Zeidman, MS, COS, WRM Choonghan Lee, PhD, COE, ME Krishna Chaitanya Solasa, PhD, COE, ME Ali Saber Sichani, PhD, COE, CEE Zachary Frank, PhD, COE, ME

SERVICE & SYNERGISTIC ACTIVITIES

- **Awards**
 - Fred and Harriet Cox Senior Design Competition, 2nd Place – Faculty Advisor (Fall 2016)
 - UNLV Faculty Opportunity Award (Spring 2015)
 - Samsung Electronics, Future Creator Award (Fall 2006)
- **Proposal Review Panel**
 - NSF GRFP (2018), DOE SBIR/STTR Program (2017-2018), DOE NEUP (2018), NASA RID (2017)
 - NSF NEXUS Seed Grants (2015) and Undergraduate Research Opportunity Program Grants (2015 & 2017)
- **Ad-hoc Journal Paper Reviewer**
 - Advanced Functional Materials, Journal of Solar Energy Engineering, Acta Materialia, Chemosphere, Chemical Engineering Journal, Thin Solid Films, MRS Proceeding etc.
- **Education Service**
 - Faculty advisor, UNLV SPIE Optic Chapter (2017-Present)
- **University Service**
 - College of Engineering International Program Coordinator Search Committee, Summer 2017
 - UNLV Program Review Committee, 2017 – Present
 - UNLV Cleanroom Committee, August 2017 – January 2018
- **Media Exposure**
 - Solar Nexus Magazine, March 2017, [Link](#)
 - Solar Nexus Magazine, December 2015, [Link](#)

- Nevada Discoveries, Magazine, Fall 2015, [Link](#)
- Science Daily, Newspaper, Fall 2014, [Link](#)
- Phy ORG, Magazine, Fall 2014, [Link](#)