CURRICULUM VITAE

Wil V. Srubar III PhD

materials science // civil & architectural engineering // engineered living materials

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I. Education and Professional Experience

Education

PhD	Stanford University, Stanford, California Civil and Environmental Engineering PhD Minor: Materials Science & Engineering	2013
MS	The University of Texas at Austin, Austin, Texas Civil, Architectural, and Environmental Engineering Graduate Portfolio Program in Sustainability	2008
BS	Texas A&M University, College Station, Texas Civil Engineering University, Foundation, and Undergraduate Research Fellow Honors	2006

Professional Experience

Associate Professor	University of Colorado Boulder, Boulder Colorado Department of Civil, Environmental, and Architectural Engineering	7/2020 – present
	Charles Victor Schelke Endowed Professorship	7/2023 – present
	Associate Chair of Undergraduate Education	7/2022 – present
	Program Faculty: Materials Science and Engineering Program	1/2014 – present
	Faculty Director: Architectural Engineering Program	3/2017 – 6/2022

Synopsis: My research integrates biology, biopolymer science, and cement chemistry to create biomimetic, carbon-storing, and engineered living material technologies. To date, I have served as PI for sponsored research projects totaling >$14.5M, of which I received >$9.7M. I have served as co-PI for sponsored research projects totaling >$13.2M, of which I received >$2.2M. I have published >100 peer-reviewed technical journal articles, book chapters, and conference proceedings, and I hold two US patents. I have seven patents that are currently pending. As of 1 January 2024, I have a Google Scholar H-Index: 28. I teach courses in materials science, mechanics, sustainability, and structural engineering.

Assistant Professor	University of Colorado Boulder, Boulder Colorado Department of Civil, Environmental, and Architectural Engineering	1/2014 – 6/2020
Research Assistant	Stanford University, Stanford, California	9/2009 – 8/2013
Project Engineer	Alpha Facilities Solutions, San Antonio, Texas	1/2009 – 9/2009
Structural Engineer	Walter P. Moore Engineers, Austin, Texas	5/2008 – 1/2009
Teaching Assistant	The University of Texas at Austin, Austin, Texas	8/2006 – 5/2008
Engineering Intern	Walter P. Moore Engineers, Dallas, Texas	6/2006 – 8/2006

II. Keynote Addresses and Invited Seminars

30 Srubar III, WV. (2023). “Engineered Living Building Materials: From Concept to Commercialization.” Synthetic Biology Australia Conference 2023. Perth, Australia. 15 November 2023. // Keynote address

29 Srubar III, WV. (2023). “Engineered Living Building Materials.” Montana State University, Bozeman, MT USA. 19 June 2023. // Invited seminar

28 Srubar III, WV. (2022). “Cement Decarbonization Using Photosynthesis.” Fall 2022 Materials Research Society (MRS) Conference. Boston, MA USA. 28 November 2022. // Invited seminar

27 Srubar III, WV. (2022). “Self-healing of Biomineralized Engineered Living Building Materials.” Fall 2022 Materials Research Society (MRS) Conference. Boston, MA USA. 28 November 2022. // Invited seminar

26 Srubar III, WV. (2022). “Growing the Cities of the Future.” 2022 Turner Innovation Summit. 16 November 2022. // Invited seminar

25 Srubar III, WV. (2022). “Transforming Buildings into Carbon Sinks.” Blume Earthquake Engineering Center / Stanford Urban Resilience Initiative Annual Meeting, Stanford University, Stanford, CA USA. 28 October 2022. // Invited seminar

24 Srubar III, WV. (2022). “Transforming Buildings into Carbon Sinks.” 6th Residential Building Design and Construction Conference. 11 May 2022. // Keynote address

23 Srubar III, WV. (2021). “Novel Biopolymer and Biomineral Material Technologies for the Built Environment.” 27th BioEnvironmental Polymers Society Annual Conference. 25 June 2021. // Keynote address

22 Srubar III, WV. (2021). “Biomimetic and Engineered Living Materials for the Built Environment.” University of Bath, BRE Centre for Innovative Construction Materials. 17 March 2021. // Invited seminar

21 Srubar III, WV. (2021). “Biomimetic and Living Materials for the Built Environment.” California Institute of Technology, Pasadena, CA USA. 4 February 2021. // Invited seminar

20 Srubar III, WV. (2020). “Toward Genetically Programmable Architecture: Biomimetic and Living Materials for the Built Environment.” The Ohio State University, Columbus, OH USA. 13 November 2020. // Invited seminar

19 Srubar III, WV. (2020). “Carbon-Storing Bio-Architecture: Toward Genetically Programmed Building Design & Construction.” Sustainable Buildings Canada 2020 Virtual Green Building Festival, 3 September 2020. // Keynote address

18 Srubar III, WV. (2020) “Engineered Living Materials at the Interface of Synthetic Biology, Materials Science, and Civil Engineering.” University of Illinois Urbana-Champaign, Champaign, IL USA. 11 March 2020. // Invited seminar

17 Srubar III, WV. (2020) “Engineered Living Materials at the Interface of Synthetic Biology, Materials Science, and Civil Engineering.” Living Materials 2020 Conference. Saarbrücken, Germany. 12 February 2020. // Invited seminar

16 Srubar III, WV. (2019) “Engineered Living Materials: Integrating Synthetic Biology, Materials Science, and Civil Engineering.” Georgia Institute of Technology Department of Civil and Environmental Engineering. Atlanta, GA USA. 18 November 2019. // Invited seminar

15 Srubar III, WV. (2019) “Building with Bacteria: Applications of Synthetic Biology to Architecture and Civil Engineering.” Materials Science Symposium. Rochester, NY USA. 24 May 2019. // Invited seminar

14 Srubar III, WV. (2019) “Living Architecture: Synthetic Biology for Structural Building Materials.” 2019 Materials Research Society (MRS) Spring Meeting: Synthetic Biology. Phoenix, Arizona USA. 25 April 2019. // Invited seminar

13 Srubar III, WV. (2019) “Biomimetic Resilience: What Can We Learn from Nature?” 2019 NHERI Science Plan Workshop. Washington, DC USA. 18 March 2019. // Invited seminar

12 Srubar III, WV. (2018) “Building with Biology: Environmentally Responsive Materials for Resilient and Regenerative Architecture.” Washington State University Department of Civil and Environmental Engineering. Pullman, Washington USA. 22 October 2018. // Invited seminar

11 Srubar III, WV. (2018) “Beyond Fly Ash: New Chemical Routes for Alkali-Activated Cements and Synthetic SCMs.” 2018 American Concrete Institute (ACI) Fall Convention. Las Vegas, Nevada USA. 15 October 2018. // Invited seminar

10 WV Srubar III. (2017). "Structural Plastics: Polymer Additive Manufacturing in Civil Engineering Research and Education." National Science Foundation (NSF) Workshop on Additive Manufacturing for Civil Infrastructure Design and Construction. Washington, DC, USA. 13 July 2017. // Invited seminar

9 WV Srubar III. (2017). "Mineralogical Stability of Metakaolin-based Alkali-Activated Cements." XIV Durability of Materials and Components (DBMC) Conference, Ghent, Belgium. 30 May 2017. // Keynote address

8 Srubar III, WV. (2017). “Biocementation and Alkali-Activation: Advances in Alternative Cements.” US Engineering Research and Development Center. 28 April 2017 // Invited seminar

7 Srubar III, WV. (2016). "Living Materials: The New Definition for the Material World." 2016 International Living Futures Institute (ILFI) Living Products Expo, Pittsburgh, Pennsylvania, USA. 15 September 2016. // Invited seminar

6 Srubar III, WV. (2016). “AEI Learn: Challenges and Opportunities of a Modern-day Architectural Engineering Education.” 2016 Architectural Engineering Institute (AEI) Forum, Worcester Polytechnic Institute, Worcester, Massachusetts, USA. 1 April 2016. // Keynote address

5 Srubar III, WV. (2013). “Evaluating the Long-Term Sustainability of Green Infrastructure Materials: A Spatiotemporal Approach.” Johns Hopkins University, Department of Civil Engineering. Baltimore, Maryland, USA. 19 March 2013. // Invited seminar

4 Srubar III, WV. (2013). “Evaluating the Long-Term Sustainability of Innovative Materials: A Spatiotemporal Approach.” University of Colorado Boulder, Department of Civil, Environmental, and Architectural Engineering. Boulder, Colorado, USA. 11 March 2013. // Invited seminar

3 Srubar III, WV. (2013). “Evaluating the Long-Term Sustainability of Green Infrastructure Materials: A Spatiotemporal Approach.” Georgia Institute of Technology, Department of Civil and Environmental Engineering. Atlanta, Georgia, USA. 26 February 2013. // Invited seminar

2 Srubar III, WV. (2012). “Long-Term Durability of Biopolymeric Composites for Construction.” Exponent, Inc. Building and Structures Group. 11 December 2012. // Invited seminar

1 Srubar III, WV. (2012). “Biorenewable Composites for Construction.” Princeton University Department of Civil and Environmental Engineering Princeton, New Jersey. 7 February 2012. // Invited seminar

III. Publications

Graduate students and postdocs under my supervision or co-supervision are denoted with (*); undergraduate students are denoted with (+). Regarding author order in my field, authors are listed in order of contribution, except the Principal Investigator (PI). If not the primary author, the PI is listed last.

Book Publications

1 Srubar III, WV, Ed. (2022). *Engineered Living Materials*, Springer Nature, 219 pp.

Peer-Reviewed Journal Publications

83 Dowdy, ND*, WV Srubar III. (2024). “Biomineralization in Cement and Concrete Research,” *RILEM Technical Letters*, in press.

82 Chen, X*, DN Beatty*, MG Matar*, WV Srubar III. (2024). “Algal Biochar-metal Nanocomposite Particles Tailor the Hydration Kinetics and Compressive Strength of Portland Cement Paste,” *ACS Sustainable Chemistry & Engineering*, in press.

81 Maierdan, Y, SJ Armistead*, RA Mikofsky*, Q Huang, L Ben-Alon, WV Srubar III, S Kawashima. (2024). “Rheology and 3D Printing of Alginate Bio-Stabilized Earth Concrete,” *Cement and Concrete Research*, in press.

80 Armistead, SJ*, RA Mikofsky*, WV Srubar III. (2023). “Toward Biomimetic and Living Earth Materials?” *Matter*, in press.

79 Li, Z, T Pei, W Ying, WV Srubar III, R Zhang, J Yoon, H Ye, I Dabo, A Radlińska. (2023). “Can Domain Knowledge Benefit Machine Learning for Concrete Property Prediction?” *Journal of the American Ceramics Society*, in press.

78 Delesky, EA*, RJ Jones*, JC Cameron, SM Cook, MH Hubler, WV Srubar III. (2023). “Hydrogel-Assisted Self-Healing of Biomineralized Living Building Materials,” *Journal of Cleaner Production*, 418, 138178.

77 Williams, SL*, DN Beatty*, WV Srubar III. (2023). “A Small-scale Thermogravimetric Method to Measure the Chemical Reactivity of Supplementary Cementitious Materials,” *Cement*, 12, 100071.

76 Frazier, SD*, AJ Lobo+, WV Srubar III. (2022). “Biomimetic Ice Recrystallization Inhibition-Active Poly(vinyl alcohol) Enhances the Freeze-thaw Resistance of Cement Paste,” *Cement and Concrete Research*, 160, 106905.

75 Arehart, JH*, F Pomponi, B D’Amico, WV Srubar III. (2022). “Structural Material Demand and Associated Embodied Carbon Emissions of the United States Building Stock: 2020-2100,” *Resources, Conservation, and Recycling*, 186, 106583.

74 Aday, AN*, J Osio-Norgaard*, SL Williams*, WV Srubar III. (2022). "Thermo-Responsive Poly(N-isopropylacrylamide) (PNIPAM) Hydrogel Particles Improve Workability Loss and Autogenous Shrinkage in Cement Paste," *Cement,* 10, 100049.

73 Delesky, EA*, LF Garcia, AJ Lobo+, JD Wallat*, GM Miyake, WV Srubar III. (2022). “Bioinspired Threonine-based Polymers with Potent Ice Recrystallization Inhibition Activity,” *ACS Applied Polymer Materials*, 4(10): 7934-7942.

72 Jones, RJ*, WV Srubar III. (2022). “Biomineralization of SCOBY Cellulose Aerogels,” *Advanced Engineering Materials*, 2200681.

71 Srubar III, WV. (2022). “The Defining Moment for Engineered Living Materials,” *Matter*, 5(8): 2556-2557.

70 Beatty, DN*, SL Williams*, WV Srubar III. (2022). “Biomineralized Materials for Sustainable and Durable Construction,” *Annual Review of Materials Research*, 52: 411-439.

69 Li Z, J Yoon, R Zhang, F Rajabipour, WV Srubar III, I Dabo, A Radlinska. (2022). “Machine Learning in Concrete Science: Applications, Challenges, and Best Practices,” *npj Computational Materials*, 8(1): 1-17.

68 Hess, KM*, JP Killgore, A Mittal, WV Srubar III. (2022). “Viscoelastic-Mapping of Cellulose Nanofibrils Using Low-Total-Force Contact Resonance Force Microscopy (LTF-CRFM),” *Cellulose*, 29: 5493-5509.

67 Delesky, EA*, WV Srubar III. (2022). “Ice-Binding Proteins and Bioinspired Synthetic Mimics in Non-Physiological Environments,” *iScience*, 104286.

66 Matar, MG*, AN Aday*, WV Srubar III. (2021). “Surfactant Properties of a Biomimetic Antifreeze Polymer Admixture for Improved Freeze-Thaw Durability of Concrete,” *Construction and Building Materials*, 313: 125423.

65 Chen, X*, MG Matar*, DN Beatty*, WV Srubar III. (2021). “Retardation Mechanisms of Algae on Cement Hydration,” *ACS Sustainable Chemistry & Engineering*, 9(41): 13726-13734.

64 DeRousseau, MA*, JR Kasprzyk, WV Srubar III. (2021). “Multi-objective Optimization Techniques for Designing Low-Carbon Concrete Mixtures.” *Frontiers in Materials: Structural Materials*, 8: 257.

63 Mensch, TE, EA Delesky*, R Learsch, KEO Foster*, SK Yeturu, WV Srubar III, GM Miyake. (2021). “Mechanical Evaluation of 3D Printed Biomimetic Non-Euclidean Saddle Geometries Mimicking the Mantis Shrimp,” *Biomimetics and Bioinspiration*, 16(5): 056002.

62 Gevaudan, JP*, ZM Craun*, WV Srubar III. (2021). "Sulfuric Acid Degradation of Alkali-Activated Metakaolin Cements Supplemented with Brucite," *Cement and Concrete Composites*, 121: 104063.

61 Justo-Reinoso, I*, MT Hernandez, WV Srubar III. (2021). “Influence of Copper-Impregnated Basic Oxygen Furnace Slag on the Fresh- and Hardened-State Properties of Antimicrobial Mortars,” *Cement and Concrete Composites*, 121: 104059.

60 Arehart, JH*, F Pomponi, B D’Amico, WV Srubar III. (2021). "A New Estimate of North America’s Building Floor Space," *Environmental Science and Technology*, 55(8): 5161-5170.

59 Foster, KEO*, RJ Jones+, GM Miyake, WV Srubar III. (2021). “Mechanics, Optics, and Thermodynamics of Water Transport of Chemically Modified Transparent Wood Composites,” *Composites Science and Technology*, 208: 108737.

58 Qiu, J, J Artier, SM Cook, WV Srubar III, JC Cameron, MH Hubler. (2021). “Engineering Living Building Materials (LBMs) for Enhanced Bacterial Viability and Mechanical Properties,” *iScience*, 24(2): 102083.

57 Osio-Norgaard, J*, AN Aday*, SL Williams*, X Chen*, JP Gevaudan*, WV Srubar III. (2021). "Silica-Modifying Chemical Admixtures for Directed Zeolitization of Metakaolin-based Alkali-Activated Materials," *Cement and Concrete Research*, 142, 106348.

56 Bedeaux, MS+, JP Gevaudan*, B Lama, WV Srubar III. (2021). “Atomic Structure and Phase Assemblages in Novel M-(N)-A-S-H Materials,” *Cement and Concrete Research*, 142: 106348.

55 Chen, X*, M Charrier*, WV Srubar III. (2021). "Nanoscale Construction Biotechnology: A Prospectus," *Frontiers in Materials*, 420: 594989.

54 Gevaudan, JP*, B Santa Ana+, WV Srubar III. (2021) "Iron Mineral Admixtures Improve the Sulfuric Acid Resistance of Low-Calcium Alkali-Activated Cements," *Cement and Concrete Composites*, 116: 103867.

53 Srubar III, WV. (2021). "Engineered Living Materials: Taxonomies and Emerging Trends," *Trends in Biotechnology*, 39(6): 574-583.

52 Delesky, EA*, PE Thomas, JC Cameron, WV Srubar III. (2021). "Effect of pH on the Activity of Ice-Binding Protein from Marinomonas primoryensis," *Extremophiles*, 25(1): 1-13.

51 Hess, KM*, CM Heveran*, WV Srubar III. (2020). “A Computational Approach to Design Moisture-Resistant Wood Polymer Composites,” *Materials Today Communications*, 25: 101594.

50 Chen, X*, WV Srubar III. (2020). "Sulfuric Acid Improves the Reactivity of Zeolites via Dealumination," *Construction and Building Materials*, 264: 120648.

49 DeRousseau, MA*, Arehart, JH*, JR Kasprzyk, WV Srubar III. (2020). “Statistical Variation in the Embodied Carbon of Concrete Mixtures,” *Journal of Cleaner Production*, 275: 123088.

48 Arehart, JH*, WS Nelson+, WV Srubar III. (2020). “On the Theoretical Carbon Storage and Carbon Sequestration Potential of Hempcrete,” *Journal of Cleaner Production*, 266: 121846.

47 Frazier, SD*, MG Matar*, AN Aday*, J Osio-Norgaard*, EA Delesky*, WV Srubar III. (2020). "Inhibiting Freeze-Thaw Damage in Cement Paste and Concrete by Mimicking Nature's Antifreeze," *Cell Reports Physical Science*, 1, 100060.

46 Justo-Reinoso, I*, MT Hernandez, C Lucero, WV Srubar III. (2020). "Dispersion and Effects of Metal-impregnated Granular Activated Carbon Particles on the Hydration of Antimicrobial Mortars," *Cement and Concrete Composites*, 110: 103588.

45 Heveran, CM*, SL Williams*, J Qiu, J Artier, MH Hubler, SM Cook, JC Cameron, WV Srubar III. (2020). "Biomineralization and Successive Regeneration of Engineered Living Building Materials," *Matter*, 2(2), 481-494.

44 Hong, SJ*, JH Arehart*, WV Srubar III. (2020). "Embodied and Operational Energy Analysis of Passive House Building Envelopes in the United States." *ASCE Journal of Architectural Engineering*, 26(2): 04020010.

43 Liang, L, R Liu, KEO Foster*, SM Cook, JC Cameron, WV Srubar III, RT Gill. (2020). "Genome Engineering of E. coli for Improved Styrene Production and Polymerization," *Metabolic Engineering*, 57, 74-84.

42 Gevaudan, JP*, JD Wallat*, B Lama, WV Srubar III. (2019). "PVA- and PEG-assisted Sol-gel Synthesis of Aluminosilicate Precursors for N-A-S-H Geopolymer Cements," *Journal of the American Ceramics Society*, 103(2), 859-877. **Best Paper Award:** Journal of the American Ceramics Society.

41 Heveran, CM*, L Liang, A Nagarajan, MH Hubler, RT Gill, JC Cameron, SM Cook, WV Srubar III. (2019). "Engineered Ureolytic Microorganisms Can Tailor the Morphology and Nanomechanical Properties of Biogenic Calcium Carbonate." *Scientific Reports*, 9, 14721

40 Kreiger, BK*, WV Srubar III. (2019). "Moisture Buffering in Buildings: A Review of Experimental and Numerical Methods," *Energy and Buildings*, 202, 109394.

39 DeRousseau, MA*, E Laftchiev, JR Kasprzyk, B Rajagopalan, WV Srubar III. (2019). "A Comparison of Machine Learning Methods for Predicting the Compressive Strength of Field-placed Concrete," *Construction and Building Materials*, 228, 116661.

38 Foster, KEO*, KM Hess*, GM Miyake, WV Srubar III. (2019). "Optical Properties and Mechanical Modeling of Transparent Wood Composite Laminates," *Materials*, 12(14): 2256.

37 Osio-Norgaard, J*, WV Srubar III. (2019). "Zeolite Adsorption of Chloride from a Synthetic Alkali-Activated Cement Pore Solution," *Materials* 12(12): 2019.

36 Wei, KH, S Gupta, AN Aday*, WV Srubar III. (2019). "Biochar-immobilized Bacteria and Superabsorbent Polymers Enable Self-healing of Fiber-reinforced Concrete After Multiple Damage Cycles," *Cement and Concrete Composites*, 100: 35-52.

35 Ellingboe, E+, JH Arehart*, WV Srubar III. (2019). "On the Theoretical CO_2 Sequestration Potential of Pervious Concrete," *Infrastructures*, 4(1): 12. Journal Cover.

34 Justo-Reinoso, I*, A Caicedo-Ramirez, WV Srubar III, MT Hernandez. (2019). "Fine aggregate substitution with acidified granular activated carbon influences fresh-state and mechanical properties of ordinary Portland cement mortars," *Construction and Building Materials*, 207: 59-69.

33 Delesky, EA*, SD Frazier*, JD Wallat*, KL Bannister+, CM Heveran*, WV Srubar III. (2019). "Ice-Binding Protein from Shewanella frigidimarinas Inhibits Ice Crystal Growth in Alkaline Solutions," *Polymers*, 11(2): 299.

32 Gevaudan JP*, ZM Craun*, WV Srubar III. (2019) "Using Calcined Waste Eggshells to Remove Sulfate in Non-Potable Concrete Mixing Water," *ASCE Journal of Materials in Civil Engineering*, 31(6): 04019074.

31 Gevaudan, JP*, A Caicedo-Ramirez, MT Hernandez, WV Srubar III. (2019). "Copper and Cobalt Improve the Acid Resistance of Alkali-Activated Cements." *Cement and Concrete Research*, 115: 327-338.

30 Liang, L, CM Heveran*, R Liu, A Nagarajan, JC Cameron, RT Gill, MH Hubler, WV Srubar III, SM Cook. (2018). "Rational Control of Calcite Production by Engineered Escherichia coli." *ACS Synthetic Biology*, 7(11): 2497-2506.

29 Hess, KM*, JP Killgore, WV Srubar III. (2018). "Nanoscale Hygromechanical Behavior of Lignin." *Cellulose*, 25(11): 6345-6360.

28 Osio-Norgaard, J*, JP Gevaudan+, WV Srubar III. (2018). "A Review of Chloride Transport in Alkali-Activated Cement Paste, Mortar, and Concrete." *Construction and Building Materials*, 186: 191-206.

27 Frazier, SD*, AN Aday*, WV Srubar III. (2018). "On-Demand Microwave-Assisted Fabrication of Gelatin Foams," *Molecules*, 23(5): 1121.

26 DeRousseau, MA*, JR Kasprzyk, WV Srubar III. (2018). "Computational Design Optimization of Concrete Mixtures: A Review," *Cement and Concrete Research*, 109: 42-53.

25 Souto-Martinez, A*, JH Arehart*, WV Srubar III. (2018). “Cradle-to-Gate CO_2e Emissions vs. in situ CO_2 Sequestration of Structural Concrete Elements,” *Energy and Buildings*, 167: 301-311.

24 Aday, AN*, J Osio-Norgaard*, KEO Foster*, WV Srubar III. (2018). "Carrageenan-based Superabsorbent Biopolymers Mitigate Autogenous Shrinkage in Ordinary Portland Cement," *Materials and Structures*, 51(37): 1-13.

23 Justo-Reinoso, I*, WV Srubar III, A Caicedo, MT Hernandez. (2018). “Fine Aggregate Substitution by Granular Activated Carbon Can Improve Physical and Mechanical Properties of Cement Mortars,” *Construction and Building Materials*, 164: 750-759.

22 Stambaugh, ND+, TL Bergman*, WV Srubar III. (2018). “Numerical Service-Life Modeling of Chloride-Induced Corrosion in Recycled Aggregate Concrete,” *Construction and Building Materials*, 161: 236-245.

21 Montoya, LD, DC Mauney, WV Srubar III. (2017). “Investigation of Efficient Air Pollutant Removal Using Active Flow Control,” *Building and Environment*, 122: 134-144.

20 Souto-Martinez, A*, EA Delesky*, KEO Foster*, WV Srubar III. (2017). “A Mathematical Model for Predicting the Carbon Sequestration Potential of Exposed Ordinary Portland Cement (OPC) Concrete,” *Construction and Building Materials*, 147: 417-27.

19 Gevaudan, JP*, KM Campbell, TJ Kane, RK Shoemaker, WV Srubar III. (2017). “Mineralization Dynamics of Metakaolin-based Alkali-Activated Cements.” *Cement and Concrete Research*, 94: 1-12.

18 Hinchcliffe, SA*, KM Hess*, WV Srubar III. (2016). “Experimental and Theoretical Investigation of Prestressed Natural Fiber-Reinforced Polylactic (PLA) Composite Materials.” *Composites Part B: Engineering*, 95: 346-354.

17 Hess, KM*, WV Srubar III. (2016). “Activating Relaxation-Controlled Diffusion Mechanisms for Tailored Moisture Resistance of Gelatin-based Bioadhesives for Engineered Wood Products.” *Composites Part A: Applied Science and Manufacturing*, 84: 435-441.

16 Frazier, SD*, WV Srubar III. (2016). “Evaporation-based Method for Preparing Gelatin Foams with Aligned Tubular Pore Structures.” *Materials Science and Engineering Part C*, 62: 467-473.

15 Barnhouse, PW*, WV Srubar III. (2016). “Material Characterization and Hydraulic Conductivity Modeling of Macroporous Recycled-Aggregate Pervious Concrete." *Construction and Building Materials*, 110: 89-97.

14 Park, B, WV Srubar III, M Krarti. (2015). “Energy Performance Analysis of Variable Thermal Resistance Envelopes in Residential Buildings.” *Energy and Buildings*, 103: 317-325.

13 Hess, KM*, WV Srubar III. (2015). “Mechanical Characterization of Gelatin-Flax Natural-Fiber Composites for Construction.” *Journal of Renewable Materials*, 3(3): 175-182.

12 Dorr, DN+, LS Traeger+, SD Frazier*, KM Hess*, WV Srubar III. (2015). “Bond Strength of Biodegradable Gelatin-based Wood Adhesives.” *Journal of Renewable Materials*, 3(3): 195-204.

11 Miller, SA, WV Srubar III, SL Billington, MD Lepech. (2015). “Integrating Durability-based Service-life Predictions with Environmental Impact Assessments of Natural Fiber-reinforced Composite Materials.” *Resources, Conservation & Recycling*, 99: 72-83.

10 Srubar III, WV. (2015). “An Analytical Model for Predicting the Freeze-Thaw Durability of Wood-Fiber Composites.” *Composites Part B: Engineering*, 69: 435-442.

9 Srubar III, WV. (2015). “Stochastic Service-Life Modeling of Chloride-Induced Corrosion in Recycled-Aggregate Concrete.” *Cement and Concrete Composites*, 55: 103-111.

8 Srubar III, WV, SA Miller, MD Lepech, SL Billington. (2014). “Incorporating Spatiotemporal Effects and Moisture Diffusivity into a Multi-Criteria Sustainable Materials Selection Methodology.” *Construction and Building Materials*, 71: 589-601.

7 Srubar III, WV, SL Billington. (2013). “A Micromechanical Model for Moisture-Induced Deterioration in Fully Biorenewable Wood-Polymer Composites.” *Composites Part A: Applied Science and Manufacturing*, 50(2): 81-92.

6 Srubar III, WV†, ZC Wright†, A Tsui, AT Michel, SL Billington, CW Frank. (2012). “Characterizing the Effect of Ambient Aging on the Mechanical and Physical Properties of Commercially Available Bacterial Thermoplastics.” †equal contribution. *Polymer Degradation and Stability*, 97: 1922-1929.

5 Srubar III, WV. (2012). “Structural Engineering and Sustainable Development.” *International Journal of Environmental Sustainability*, 8(2): 11-18.

4 Srubar III, WV, CW Frank, SL Billington. (2012). “Modeling the Kinetics of Water Transport and Hydroexpansion in a Lignocellulose-Reinforced Bacterial Copolyester.” *Polymer*, 53: 2152-2161.

3 Srubar III, WV, AT Michel, CS Criddle, CW Frank, SL Billington. (2012). “Engineered Biomaterials for Construction: A Cradle-to-Cradle Design Methodology for Green Material Development.” *International Journal of Environmental, Cultural, Economic and Social Sustainability*, 7(5): 157-166.

2 Srubar III, WV, S Pilla, ZC Wright, CA Ryan, JP Greene, CW Frank, SL Billington. (2012). “Mechanisms and Impact of Fiber-Matrix Compatibilization Techniques on the Material Characterization of PHBV/Oak Wood Flour Engineered Biobased Composites.” *Composites Science and Technology*, 72: 708-715.

1 Alvarado AJ, KM Morales, WV Srubar III, SL Billington. (2011). "Effects of Natural Porous Additives on the Tensile Mechanical Performance and Moisture Absorption Behavior of PHBV-based Composites for Construction." *Stanford Undergraduate Research Journal*, Vol.10; pp. 030-035.

Peer-Reviewed Book Chapter Publications

7 Delesky, EA*, AJ Lobo+, WV Srubar III. (2023). “Measurement of Ice-Binding Protein Activity in Highly Alkaline Environments,” in *Ice-Binding Proteins: Methods and Protocols*, R Drori and CA Stevens, Eds. Springer: 135-154.

6 Jones, RJ*, EA Delesky*, SM Cook, JC Cameron, MH Hubler, WV Srubar III. (2022). “Engineered Living Materials for Construction,” in *Engineered Living Materials.* WV Srubar III, Ed. Springer: 187-216.

5 Srubar III, WV. (2022). “Can We Grow Carbon-Storing Buildings,” in *Build Beyond Zero.* B King and C Magwood, Eds. Island Press, 97-103.

4 Aday, AN*, WV Srubar III. (2020). “Biobased Polymers for Mitigating Early- and Late-Age Cracking in Concrete,” in *Bio-Based Materials and Biotechnologies for Eco-efficient Construction*. F Pachego-Torgal, V Ivanov, and DCW Tsang, Eds. Woodhead Publishing Series in Civil and Structural Engineering: 19-41.

3 Souto-Martinez, A*, EJ Sutley, AB Liel, WV Srubar III. (2018). “Embodied Carbon of Wood and Reinforced Concrete Structures Under Chronic and Acute Hazards,” in Embodied Carbon in Buildings. C De Wolf, F Pomponi, A Moncaster, Eds. Springer: 77-103.

2 Davis, M, W Sullens, WV Srubar III. (2017). “Plastic: So Great, So Awful—Some New Directions,” in The New Carbon Architecture. King, B, Ed. New Society Publishers: 85-100.

1 Billington, SL, WV Srubar III, AT Michel, SA Miller. (2014). “Renewable Biobased Composites for Civil Engineering Applications,” in Sustainable Composites: Fibers, Resins, and Applications. Netravali, A. and C. Pastore, Eds. DESTech: Lancaster, PA: 313-36.

Peer-Reviewed Conference Publications

37 Dowdy, ND*, J Ren*, DN Beatty*, WV Srubar III. (2023). “Cement Hydration Kinetics of LC3 Paste Synthesized with Biologically Architected $CaCO_3$,” 16th International Conference on the Chemistry of Cement. Bangkok, Thailand. 18-22 September 2023. // Oral Presentation by N Dowdy.

36 Ren, J*, ND Dowdy*, DN Beatty*, WV Srubar III. (2023). “Reaction Kinetics and Mechanical Properties of Alkali-Activated Metakaolin-Limestone Cements,” 16th International Conference on the Chemistry of Cement. Bangkok, Thailand. 18-22 September 2023. // Oral Presentation by J Ren.

35 Beatty, DN*, WV Srubar III. (2023). “Nucleation Effects of Biologically Architected Calcium Carbonate in Portland Limestone Cements,” 16th International Conference on the Chemistry of Cement. Bangkok, Thailand. 18-22 September 2023. // Oral Presentation by D Beatty.

34 Li, Z, T Pei, W Ying, WV Srubar III, R Zhang, J Yoon, H Ye, I Dabo, A Radlińska. (2023). “Simulation-based transfer learning for concrete strength prediction,” Proceedings of the RILEM Spring Convention & 4th International Congress on Materials & Structural Stability. // Oral Presentation by Z Li.

33 Murphy, MC+, DN Beatty*, WV Srubar III. (2023). “Structure and Properties of Portland-Limestone Cements Synthesized with Biologically Architected Calcium Carbonate,” Proceedings of the 2023 International Conference on Bio-based Building Materials, 42-53. // Oral Presentation by M Murphy.

32 Mikofsky, RA*, SJ Armistead*, WV Srubar III. (2023). “On the Bonding Characteristics of Clays and Biopolymers for Sustainable Earthen Construction,” Proceedings of the 2023 International Conference on Bio-based Building Materials, 280-292. // Oral Presentation by R Mikofsky.

31 Frey, MR*, SL Williams*, C Torres-Machi, WV Srubar III. (2023). “Biobased Alternative Binders from Agar for Civil Engineering Applications: Thermal, Biodegradation, and Moisture Sorption Properties,” Proceedings of the 2023 International Conference on Bio-based Building Materials, 665-675. // Oral Presentation by M Frey.

30 Bryson, ZE, WV Srubar III, S Kawashima, L Ben-Alon. (2022). "Towards 3D Printed Earth and Bio-based Insulation Materials: A Case Study on Light Straw Clay," The 18th International Conference on Non-Conventional Materials and Technologies, 9 June 2022. // Oral Presentation by L Ben-Alon.

29 Matar, M*, SD Frazier*, WV Srubar III. (2020). "Biomimetic Antifreeze Polymers: A Natural Solution to Freeze-Thaw Damage in Cement and Concrete," 2020 DBMC Virtual Conference, 21 October 2020. // Oral Presentation by M Matar.

28 Kreiger, B*, K Baker, WV Srubar III (2020). "Quantifying Grid Interaction Capabilities of Dynamic Building Envelopes." 2020 ASHRAE Virtual Conference, Austin TX, 2 July 2020. // Oral Presentation by J Arehart.

27 Arehart, JH*, F Pomponi, B D'Amico, WV Srubar III (2020). "Embodied Energy of DOE Commercial Reference Buildings." 2020 ASHRAE Virtual Conference, Austin TX, 2 July 2020. // Oral Presentation by J Arehart.

26 Osio-Norgaard, J*, JP Gevaudan*, WV Srubar III. (2019). "Chloride Transport and Chloride Binding in Alkali-Activated Cement Paste, Mortar, and Concrete," 2019 International Congress on the Chemistry of Cement, Prague, Czech Republic. 18 September 2019. // Poster Presentation by J Gevaudan

25 Gevaudan, JP*, WV Srubar III. (2019). "Acid Resistance Mechanisms of Alkali-Activated Cements," 2019 International Congress on the Chemistry of Cement, Prague, Czech Republic. 18 September 2019. // Oral Presentation by J Gevaudan

24 Noonan, K*, KM Hess*, WV Srubar III. (2019). "Moisture- And Freeze-Thaw-Induced Deterioration of Natural Fiber Composites With Low Fiber Contents," Proceedings of the 3rd International Conference on Bio-based Building Materials, Belfast, Ireland. 26 June 2019. **Best Presentation Award**. // Oral Presentation by K Noonan

23 Williams, SL*, J Artier, J Qiu, CM Heveran*, A Nagarajan, MH Hubler, SM Cook, JC Cameron, WV Srubar III. (2019). "Regenerative Hydrogel-Based Living Microbial Mortars: Investigation of Viability and Strength in Successive Material Generations," Proceedings of the 3rd International Conference on Bio-based Building Materials, Belfast, Ireland. 26 June 2019. // Oral Presentation by S Williams

22 Arehart, JH*, WV Srubar III. (2019). "Advances in Transparent Wood Composites for Application in Large Office and Mid-Rise Apartment Buildings," Proceedings of the 2019 Architectural Engineering Institute (AEI) Conference, Washington, DC USA. // Oral Presentation by J Arehart

21 Gevaudan, JP*, J Osio-Norgaard*, WV Srubar III. (2019). "Alternative Cements: Recent Developments and Future Directions," Proceedings of the 2019 Architectural Engineering Institute (AEI) Conference, Washington, DC USA. // Oral Presentation by J Gevaudan

20 Caicedo-Ramirez, A, I Justo-Reinoso*, WV Srubar III, MT Hernandez. (2018). "Incorporating Metal-Laden Granular Activated Carbon in Cement Improves Strength Performance and Inhibits Biogenic Concrete Corrosion." RILEM 253-Microoerganisms-Cementitious Materials Interactions (MCI) Final Conference, 25-26 June 2018. Toulouse, France. // Oral Presentation by M Hernandez

19 Sutley, EJ, WV Srubar III. (2018). "A Framework for Quantifying Social, Economic, and Environmental Sustainability of Hazard Mitigation Policies." 2018 American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI) Structures Congress. 19-21 April 2018. Fort Worth, Texas, USA. // Oral Presentation by E Sutley

18 Sutley, EJ, WV Srubar III. (2018). "Quantifying the Social, Economic, and Environmental Sustainability of Disaster Policies." 11th US National Conference on Earthquake Engineering (NCEE). 25-29 June 2018. Los Angeles, California, USA // Oral Presentation by E Sutley

17 Gevaudan, JP*, WV Srubar III. (2017). "Mineralogical Stability of Metakaolin-based Alkali-Activated Cements." Proceedings of the XIV Durability of Materials and Components (DBMC) Conference, Ghent, Belgium. **Keynote address** // Oral Presentation by W Srubar

16 Souto-Martinez, A*, WV Srubar III. (2017). "Quantifying the Carbon Sequestration Potential of Exposed Reinforced Concrete." Proceedings of XIV Durability of Materials and Components (DBMC) Conference, Ghent, Belgium. // Oral Presentation by A Souto-Martinez

15 Aday, A*, WV Srubar III. (2017). "Superabsorbent Biopolymers for Autogenous Shrinkage Mitigation in Cement Paste and Mortar." Proceedings of the 2nd International Conference on Biobased Building Materials, Clermont-Ferrand, France. // Oral Presentation by W Srubar

14 Hess, KM*, WV Srubar III. (2017). "Predicting the Freeze-thaw Deterioration of Natural Fiber Composites." Proceedings of the 2nd International Conference on Biobased Building Materials, Clermont-Ferrand, France. // Oral Presentation by W Srubar

13 Souto-Martinez, A*, EA Delesky*, KEO Foster*, WV Srubar III. (2017). "Accounting for Carbon Sequestration Potential of Reinforced Concrete in Whole-Building Life Cycle Assessment." Proceedings of the 2017 Architectural Engineering Institute (AEI) Conference, Oklahoma City, Oklahoma, USA. // Oral Presentation by A Souto-Martinez

12 Gevaudan, JP*, WV Srubar III. (2017). "Energy Performance of Alkali-Activated Cement-based Concrete Buildings." Proceedings of the 2017 Architectural Engineering Institute (AEI) Conference, Oklahoma City, Oklahoma, USA. // Oral Presentation by JP Gevaudan

11 Srubar III, WV, KM Hess*, DN Dorr*, LS Traeger*, SD Frazier*. (2015). "Protein-based Biomaterials for Temporary Construction," Proceedings of the 1st International Conference on Bio-based Building Materials, Clermont-Ferrand, France. // Oral Presentation by W Srubar

10 Djokic, D, WV Srubar III. (2015). "Facilitating Interdisciplinary Problem-Solving among Pre-Collegiate Engineering Students via Materials Science Principles," Proceedings of the 2015 American Society of Engineering Education Conference, Seattle, Washington, USA. // Oral Presentation by W Srubar

9 Hess, KM*, SA Hinchcliffe*, WV Srubar III. (2015). "Biobased FRPs for Retrofit and Rehabilitation of Civil Infrastructure." Proceedings of the Structural Engineering Institute Conference, Portland, Oregon, USA. // Oral Presentation by K Hess

8 Srubar III, WV. (2015). "The Future of LCAs and EPDs: Incorporating Service-Life in the Environmental Impact Assessments of Green Building Materials." Proceedings of the 2015 Architectural Engineering Institute, Milwaukee, Wisconsin, USA. // Oral Presentation by W Srubar

7 Srubar III, WV, AE Seifried, AT Michel, AB Liel. (2014). "Next-Generation Disaster-Related Debris Estimation Models." Third International Conference on Urban Disaster Reduction. Boulder, Colorado, USA. // Oral Presentation by A Michel

6 Michel, AT, WV Srubar III, SL Billington. (2014). "Biobased Materials for Sustainable Temporary Disaster-Relief Housing." Third International Conference on Urban Disaster Reduction. Boulder, Colorado, USA. // Poster Presentation by A Michel

5 Srubar III, WV. (2014). "Beyond LCAs and EPDs: Importance of Service-Life Prediction for Green Materials and Structures." Proceedings of the 2014 Sustainable Structures Symposium, Portland, Oregon USA. // Oral Presentation by W Srubar

4 Srubar III, WV, SL Billington. (2011). "Engineered Biobased Composites: Material Development, Multiscale Modeling, and Long-Term Durability." Proceedings of the 2011 American Society of Civil Engineers Structures Congress, Las Vegas, Nevada, USA. // Oral Presentation by W Srubar

3 Srubar III, WV, CW Frank, SL Billington. (2011). "PHBV/Oak Wood Flour Engineered Biobased Composites: Tensile Properties and Water Absorption Behavior." Proceedings of the 2011 American Composites Manufacturers Association, Ft. Lauderdale, Florida, USA. **Best Paper Award**. // Oral Presentation by W Srubar

2 Billington, SL, CW Frank, CS Criddle, WV Srubar III, CA Ryan, and ZC Wright. (2011). "Overview of Research on In-Service and Out-of-Service Performance of Fully Biobased Polymeric Composites." Proceedings of the 2011 NSF Engineering Research and Innovation Conference, Atlanta, Georgia. // Poster Presentation by S Billington

1 Srubar III, WV, SL Billington. (2011). "Nonlinear Micromechanical Modeling of Structural Biobased Composite Materials." R.I. Borja, Ed. Multiscale and Multiphysics Processes in Geomechanics: 189–192. // Poster Presentation by W Srubar

Journal, Book Chapter, and Conference Publications: In Review or In Revision

4 Jungclaus, MA*, N Grant*, M Torres*, JH Arehart, WV Srubar III. "Embodied Carbon Benchmarks of Single-family Residential Buildings in the United States," in review.

3 Matar, MG*, AN Aday*, BC Acarturk*, WV Srubar III. "Surfactant Chemistry of Air Entraining Agents and Alternatives for Mitigating Freeze-Thaw Damage in Concrete: A Review," in revision.

2 Jungclaus, MA*, SL Williams*, JH Arehart, WV Srubar III. "Whole-Life Carbon Emissions of Concrete Mixtures Considering Maximum CO_2 Sequestration *via* Carbonation," in review.

1 Frey, MR*, SL Williams*, C Torres-Machi, WV Srubar III. "Fresh-State Properties and Biodeterioration Resistance of Sustainable Alternative Asphalt Binders from Agar," in review.

Other Publications

11 Srubar III, WV. (2022). "Tiny Algae Could Help Fix Concrete's Dirty Little Climate Secret – 4 Innovative Ways to Clean Up This Notoriously Hard to Decarbonize Industry," The Conversation, 7 September 2022. https://theconversation.com/tiny-algae-could-help-fix-concretes-dirty-little-climate-secret-4-innovative-ways-to-clean-up-this-notoriously-hard-to-decarbonize-industry-186194

10 Srubar III, WV. (2022). “Concrete Has a colossal Carbon Footprint and We Can Help Fix That in Colorado,” Boulder Daily Camera, 16 February 2022. https://www.dailycamera.com/2022/02/16/dr-wil-srubar-concrete-has-a-colossal-carbon-footprint-and-we-can-fix-that-in-colorado/

9 Sagaser M*, M Torres*, MA Jungclaus*, WV Srubar III. (2022). “Embodied Carbon Emissions Analysis of the Brenton Building Renovation,” April 2022.

8 Dada, A*, FR Rutz, WV Srubar III. (2022). “Bioinspiration and Structural Engineering,” STRUCTURE Magazine. March 2022. https://www.structuremag.org/?p=19992

7 Jones RJ*, SL Williams*, WV Srubar III. (2021). "Can We ‘Grow’ Living Concrete Alternatives?" STRUCTURE Magazine. June 2021. https://www.structuremag.org/?p=17906

6 Kriegh, J, C Magwood, WV Srubar III, M Lewis, K Simonen. (2021). “Transformative Carbon-Storing Materials: Accelerating an Ecosystem Report.” Carbon Leadership Forum. https://carbonleadershipforum.org.

5 Srubar III, WV, S Barnes, M Grieshaber, A Orens. (2021). “A Methodology for Building-based Embodied Carbon Offsetting,” Aureus Earth, Inc. http://www.aureusearth.com.

4 Kriegh, J, C Magwood, WV Srubar III. (2021). “Carbon-Storing Materials: Summary Report.” Carbon Leadership Forum. https://carbonleadershipforum.org.

3 Gevaudan, JP*, WV Srubar III. (2015). “Characterization of Fly Ash for the Production of Geopolymer Cements.” ASTM International, pp. 1-11.

2 Srubar III, WV. (2013). "Hygrothermal Durability of Fully Biorenewable Composites for Construction Applications." Doctoral Dissertation, Stanford University, Stanford, California, USA.

1 Srubar III, WV. (2006). “Architecture and Engineering: Assessing the Importance of Aesthetic Design in Structural Engineering Curricula.” Undergraduate Research Fellows Thesis, Texas A&M University, College Station, Texas, USA.

IV. Patents

9 Srubar III, WV, X Chen. (2022). “Cement Additive for Retardation of Cement Hydration, Cement Mixtures Including Same. and Methods of Forming and Using Same.” International Patent Application No: PCT/US2022/022808. Washington, DC: US Patent and Trademark Office.

8 Srubar III, WV, JH Arehart. (2020). “Method of Sequestering Gas-Phase Materials During Formation of Hempcrete and Materials Formed Using Same.” International Patent Application No: PCT/US21/27525. Washington, DC: US Patent and Trademark Office.

7 Srubar III, WV, SM Cook, MH Hubler, JC Cameron. (2020). “Living Structural Material.” International Patent Application No: PCT/US2020/020863. Washington, DC: US Patent and Trademark Office.

6 Srubar III, WV, SD Frazier, EA Delesky, JD Wallat-Pullara. (2020). “Methods and compositions for Inhibiting Freeze-thaw Damage in Concrete and Cement Paste.” International Patent Application No: PCT/US20/38198. Washington, DC: US Patent and Trademark Office.

5 Srubar III, WV, SL Williams, JC Cameron, MH Hubler, SM Cook, A Nagarajan, CM Heveran. (2019). “Methods of Forming Minerals Using Biomineralizing Microorganisms and Biomineralizing Macroorganisms and Compositions Formed Using Same.” International Application No: PCT/US2020/058344. Washington, DC: US Patent and Trademark Office.

4 Srubar III, WV, JP Gevaudan, JD Wallat. (2020). “Synthetic Aluminosilicate Material and Methods of Forming and Using Same.” International Application No: PCT/US2020/045804. Washington, DC: US Patent and Trademark Office.

3 Srubar III, WV, JP Gevaudan. (2019). “Acid-Resistant Inorganic Composite Material and Method of Forming Same.” International Application No: PCT/US2020/045808. Washington, DC: US Patent and Trademark Office.

2 Srubar III, WV, SL Billington. (2014). “Coated Biodegradable Building Article.” US Patent No. 8,759,424. Washington, DC: US Patent and Trademark Office.

1 Srubar III, WV, SL Billington. (2013). “PHBV/Ground Bone Meal and Pumice Powder Engineered Biobased Composite Materials for Construction.” US Patent No. 8,507,588. Washington, DC: US Patent and Trademark Office.

V. Presentations

Presentations related to peer-reviewed conference papers (Section II.C) are not included in this section unless the presentation was a keynote address or invited lecture or was selected for an award. Keynote addresses, presentation awards, and invited seminars are bold. Notation: Graduate students are denoted with (*); undergraduate students are denoted with (+). Distinction is made between oral and poster presentations.

Presentations at National and International Conferences and Meetings

145 Jungclaus, MA*, WV Srubar III. (2023). "Embodied Carbon Intensity Benchmarks for Single-family Residential Buildings," Getting to Zero Forum. Minneapolis, MN USA. 10 May 2023. // Oral Presentation by M Jungclaus

144 Acarturk, BC*, WV Srubar III. (2023). "Effect of Algal Biomass on Fresh and Hardened Properties of Calcium Sulfoaluminate Cement," 2nd International Workshop on Calcium Sulfoaluminate Cements. Rome, Italy. 2 October 2023. // Oral Presentation by BC Acarturk

143 Mazumdar, N*, DN Beatty, SL Williams, C Alves de Souza, M Gaurnieri, WV Srubar III. (2023). "Microalgal Chalk to Cement: A Photosynthetic Route to Carbon-Negative Portland Limestone Cement Production," 2023 ARPA-E Summit. Washington, DC USA. 22 March 2023. // Oral Presentation by N Mazumdar and D Beatty

142 Jungclaus, MA*, WV Srubar III. (2023). "Modeling the Embodied CO_2 Emissions and CO_2 Sequestration via Carbonation in Portland Cement Concretes," 2023 Architectural Engineering Institute (AEI) Conference. Denver, CO USA. 12 April 2023. // Oral Presentation by M Jungclaus

141 Arehaert, JH*, WV Srubar III. (2023). "Estimating Total Floor Space in North America and its Impact on Building Stock Models," 2023 Architectural Engineering Institute (AEI) Conference. Denver, CO USA. 12 April 2023. // Oral Presentation by J Arehart

140 Jungclaus, MA*, WV Srubar III. (2023). "Embodied Carbon Benchmarking of Single-family Residential Buildings," 2023 Architectural Engineering Institute (AEI) Conference. Denver, CO USA. 12 April 2023. // Oral Presentation by M Jungclaus

139 Maierdan, Y, SJ Armistead*, RA Mikofsky*, Q Huang, L Ben-Alon, WV Srubar III, S Kawashima. (2023). "Revolutionizing Earth-based Construction: Enabling 3D Printing of Earth with Eco-friendly Biopolymers," 8th annual ACM Symposium on Computational Fabrication. New York, NY USA. 8 October 2023. // Oral Presentation by Y Maierdan

138 Li, Z, J Yoon, R Zhang, F Rajabipour, WV Srubar III, I Dabo, A Radlińska. (2023). "Opportunities and Challenges for Machine Learning in Concrete Science," American Concrete Institute (ACI) Spring 2023 Convention. San Francisco, CA USA. 2 April 2023. // Oral Presentation by Z Li

137 Li, Z, T Pei, W Ying, WV Srubar III, R Zhang, J Yoon, H Ye, I Dabo, A Radlińska. (2023). "Knowledge-Informed Machine Learning for Concrete Property Prediction." American Concrete Institute (ACI) Fall 2023 Convention. Boston, MA, USA. 29 October 2023. // Oral Presentation by Z Li

136 Li, Z, T Pei, W Ying, WV Srubar III, R Zhang, J Yoon, H Ye, I Dabo, A Radlińska. (2023). "Machine Learning in Concrete Science: Advancements and Challenges." 13th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. New York, NY USA. 11 July 2022. // Oral Presentation by A Radlińska

135 Dowdy, ND*, J Ren*, DN Beatty*, WV Srubar III. (2023). "Hydration Kinetics, Microstructure, and Properties of LC3 Synthesized with Biologically Architected $CaCO_3$." 13th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. New York, NY USA. 11 July 2022. // Poster Presentation by N Dowdy

134 Acarturk, BC*, WV Srubar III. (2023). "Use of Algal Biomass for Retardation of Calcium Sulfoaluminate Cement." 13th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. New York, NY USA. 11 July 2022. // Oral Presentation by BC Acarturk

133 Ren, J*, ND Dowdy*, DN Beatty*, WV Srubar III. (2023). "Effects of Calcium Carbonate Addition on the Hydration Kinetics, Microstructure, and Mechanical Properties of Metakaolin-based Geopolymer Cement Pastes." 13th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. New York, NY USA. 11 July 2022. // Oral Presentation by J Ren

132 Beatty DN*, MC Murphy+, WV Srubar III. (2023). "Biologically Architected Calcium Carbonate as a Filler in Portland Limestone Cements." 13th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. New York, NY USA. 11 July 2022. // Oral Presentation by D Beatty

131 Srubar III, WV. (2023). "Photosynthesis-driven Biomineralization in Coccolithophores for Cement Decarbonization." Global Marine Science Summit, Wilmington, NC USA. 19 May 2023. // Invited seminar

130 Srubar III, WV. (2023). "Engineered Living Building Materials." Montana State University, Bozeman, MT USA. 19 June 2023. // Invited seminar

129 Srubar III, WV. (2022). “Cement Decarbonization Using Photosynthesis.” Fall 2022 Materials Research Society (MRS) Conference. Boston, MA USA. 28 November 2022. // Invited seminar

128 Srubar III, WV. (2022). “Self-healing of Biomineralized Engineered Living Building Materials.” Fall 2022 Materials Research Society (MRS) Conference. Boston, MA USA. 28 November 2022. // Invited seminar

127 Srubar III, WV. (2022). “Transforming Buildings into Carbon Sinks.” Blume Earthquake Engineering Center / Stanford Urban Resilience Initiative Annual Meeting, Stanford University, Stanford, CA USA. 28 October 2022. // Invited seminar

126 Li, Z, J Yoon, R Zhang, F Rajabipour, WV Srubar III, I Dabo, A Radlinska. (2022). “Opportunities and Challenges for Machine Learning in Concrete Science.” 4th Transportation Asset and Infrastructure Management (TAIM) Conference. Boalsburg, PA USA. 17 October 2022. // Oral Presentation by Z Li

125 Srubar III, WV. (2022). “Low-Carbon Building Materials: Cement and Steel.” 2022 NREL Innovation Showcase. Vail, CO USA. 5 October 2022. // Oral Presentation

124 Srubar III, WV. (2022). “2022 Mass Timber Competition: Building to Net-Zero Carbon.” 2022 American Institute of Architects Conference. Chicago, IL USA. 23 June 2022. // Oral Presentation

123 Srubar III, WV. (2022). “Engineered Living Materials.” DARPA Forward. Fort Collins, CO USA. 30 August 2022. // Oral Presentation

122 Williams, SL*, DN Beatty*, WV Srubar III. (2022). “Screening Siliceous Biominerals Extracted from Microalgae Using a Small-Scale, Modified R3 Method.” 12th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. Irvine, CA USA. 11 July 2022. // Oral Presentation by S Williams

121 Beatty, DN*, H Brimelow*, SD Frazier*, WV Srubar III. (2022). “Biogenic $CaCO_3$ as a CO_2-storing Filler in Portland Limestone Cements.” 12th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. Irvine, CA USA. 11 July 2022. // Oral Presentation by D Beatty

120 Jungclaus, MA*, JH Arehart*, WV Srubar III. (2022). “Modeling Upfront CO_2 Emissions and Sequestration Potential of Portland Cement Concrete.” 12th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. Irvine, CA USA. 11 July 2022. // Poster Presentation by M Jungclaus

119 Cooper, C, Y Koliglu, C Neidl, WV Srubar III. (2022). “Urban Sequoia.” Climate ABC Series, National Building Museum. 28 June 2022. // Oral Presentation by W Srubar

118 Srubar III, WV. (2022). “2022 Mass Timber Competition: Building to Net-Zero Carbon.” 2022 American Institute of Architects Conference. Chicago, IL USA. 23 June 2022. // Oral Presentation

117 Williams, SL*, DN Beatty*, WV Srubar III. (2022). “Photoautotrophic Biomineralizing Microalgae as Alternative SCMs.” The Corvallis Workshops and Doctoral Short Course: Concrete Fit for Purpose and the Planet. Corvallis, OR USA. 22 June 2022. // Oral Presentation by S Williams

116 Beatty, DN*, H Brimelow*, SD Frazier*, WV Srubar III. (2022). “Biogenic Limestone as a CO_2-storing Filler in Portland Cement Concrete.” The Corvallis Workshops and Doctoral Short Course: Concrete Fit for Purpose and the Planet. Corvallis, OR USA. 22 June 2022. // Poster Presentation by D Beatty

115 Jungclaus, MA*, JH Arehart*, WV Srubar III. (2022). “Modeling the Theoretical CO_2 Sequestration of Portland Cement Concrete.” The Corvallis Workshops and Doctoral Short Course: Concrete Fit for Purpose and the Planet. Corvallis, OR USA. 22 June 2022. // Poster Presentation by M Jungclaus

114 Srubar III, WV. (2022). “Advances in Biomineralized Building Materials.” NIST Workshop: Fostering a Circular Economy and Carbon Sequestration for Construction Materials. 8 June 2022. // Oral Presentation

113 Srubar III, WV. (2022). “Transforming Buildings into Carbon Sinks.” 6th Residential Building Design and Construction Conference. 11 May 2022. // Keynote address

112 Dada, A*, Srubar III, WV. (2022). “From Bioinspired to Living Materials.” 2022 Structures Congress. Atlanta, GA USA. 21 April 2022. // Oral Presentation by A Dada

111 Li, Z, J Yoon, R Zhang, F Rajabipour, WV Srubar III, I Dabo, A Radlinska. (2022). “Opportunities and Challenges for Machine Learning in Concrete Science.” 1st International Data Science for Pavements Symposium (DSPS22). McLean, VA USA. 22 March 2022. // Oral Presentation by Z Li

110 Srubar III, WV. (2022). “Transforming Buildings into Carbon Sinks.” Sustainable Low-Carbon Building Materials Workshop. Oak Ridge National Laboratory. 25 January 2022. // Oral Presentation

109 Frey, M*, SL Williams*, C Torres-Machi, WV Srubar III. (2022). “Exploring the Use of Agar as an Alternative for Petroleum-Based Asphalt Binders,” Transportation Research Board 101st Annual Meeting,” Washington, D.C., 9-13 January 2022 // Poster Presentation by M Frey.

108 Hess, KM*, J Killgore, WV Srubar III. (2021) "Quantitative Viscoelastic Mapping of Cellulose Nanofibrils Using Low-Total-Force Contact Resonance Force Microscopy," 2021 International Scanning Probe Microscopy and Scanning Probe Microscopy on Soft Polymeric Materials (iSPM3) Conference. 28 June 2021. // Oral Presentation by J Killgore.

107 Chen, X*, MG Matar*, DN Beatty*, WV Srubar III. (2021) "Retardation Mechanisms of Algae on Cement Hydration," 11th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. 23 June 2021. // Oral Presentation by X Chen.

106 Williams, SL*, DN Beatty*, WV Srubar III. (2021) "Toward Biogenic Production of Supplementary Cementitious Materials Using Photosynthesis," 11th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. 23 June 2021. // Oral Presentation by S Williams.

105 Aday, AN*, MG Matar*, WV Srubar III. (2021) "Two-Phase Smart Polymeric Admixture for Manipulating Static Yield Stress and Apparent Viscosity in Cement Paste," 11th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. 23 June 2021. // Oral Presentation by A Aday.

104 Matar, MG*, SD Frazier*, J Osio-Norgaard*, AN Aday*, EA Delesky*, WV Srubar III. (2021) "Mimicking Nature's Antifreeze Can Inhibit Freeze-Thaw Damage in Cement Paste and Concrete," 11th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. 23 June 2021. // Oral Presentation by M Matar.

103 Lobo, AJ+, RG Fagan+, EA Delesky*, SD Frazier*, WV Srubar III. (2021) "Can a Bioinspired Mimic of Antifreeze Proteins Inhibit Freeze-thaw Damage in Cement Paste?" 11th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. 23 June 2021. **Best Presentation Award** // Poster Presentation by A Lobo.

102 Frazier, SD*, AJ Lobo+, RG Fagan+, WV Srubar III. (2021) "Enhanced freeze-thaw resistance in cement paste via biomimetic ice recrystallization inhibition activity of polyvinyl alcohol?" 11th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. 23 June 2021. // Poster Presentation by S Frazier.

101 Srubar III, WV. (2021). "Novel Biopolymer and Biomineral Material Technologies for the Built Environment." 27th BioEnvironmental Polymers Society Annual Conference. 25 June 2021. **Keynote address** // Oral Presentation by W Srubar.

100 Artier, J, J Qiu, S Cook, WV Srubar III, M Hubler, JC Cameron. (2021) "Prospects to Enhance Biological and Mechanical Performance in Living Building Materials." 2021 Synthetic Biology: Engineering, Evolution & Design (SEED) Conference. 18 June 2021. // Oral Presentation by J Artier.

99 Frey, M*, SL Williams*, C Torres-Machi, WV Srubar III. (2021) "Biobased Alternative Asphalt Binders from Agar: Baseline Properties and Future Directions." 2021 American Society of Civil Engineers (ASCE)International Airfield and Highway Pavements Conference. 6 June 2021. // Oral Presentation by M Frey.

98 Srubar III, WV. (2021). "Growing a Concrete Alternative." 2021 American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI) Structures Congress. 4 June 2021. // Oral Presentation by W Srubar.

97 Srubar III, WV, CM Heveran*, SL Williams*, J Qiu, J Artier, L Liang, A Nagarajan, R Gill, M Hubler, S Cook, J Cameron. (2021). "Genetically Programmable Construction Materials," 2021 Architectural Engineering Institute (AEI) Conference. 8 April 2021 // Oral Presentation by W Srubar.

96 Srubar III, WV, C White, MG Matar*, C Pu, X Chen*, K Gong, Y Zhang, H Brimelow*. (2021). "The Use of Acid-Resistant Alkali-Activated Cement (AAC) Concrete," 2021 American Concrete Institute (ACI) Spring Convention. 28 March 2021 // Oral Presentation by W Srubar.

95 Srubar III, WV. (2020). "Low-Carbon and Carbon-Storing Material for the Built Environment." Department of Energy (DOE) Building Technologies Office (BTO) Life Cycle Assessment (LCA) Panel: Innovative Materials, 12 November 2020. // Oral Presentation by W Srubar.

94 Gevaudan, JP*, JD Wallat*, B Lama, WV Srubar III. (2020). "Advances in Polymer-assisted Sol-gel Synthesis of Aluminosilicate Precursors for Modern Cementitious Materials," Materials Science & Technology (MS&T), 4 November 2020. **Best Paper Award** // Oral Presentation by JP Gevaudan.

93 Srubar III, WV. (2020). "Photosynthetic Engineered Living Materials." AIA/ACSE Intersections Research Conference: CARBON, 1 October 2020. // Oral Presentation by W Srubar.

92 Srubar III, WV. (2020). "Buildings as Global Carbon Sinks: How Biomaterials Can Address the Climate Crisis," ASCE V-Tech Conference, 17 September 2020. // Oral Presentation by W Srubar.

91 Srubar III, WV. (2020). "Photosynthetic Engineered Living Materials." 2020 Algae Biomass Summit, 16 September 2020. // Oral Presentation by W Srubar.

90 Magwood, C, WV Srubar III. (2020). "Lock-It Up: Carbon Capture Opportunities and Innovations," CarbonPositive20, 8 September 2020. // Oral Presentation by C Magwood and W Srubar.

89 Srubar III, WV. (2020). "Carbon-Storing Bio-Architecture: Toward Genetically Programmed Building Design & Construction." Sustainable Buildings Canada 2020 Virtual Green Building Festival, 3 September 2020. **Keynote address** // Oral presentation by W Srubar.

88 Arehart JH*, F Pomponi, B D'Amico, WV Srubar III. (2020). "Carbon storage for climate change mitigation: An investigation of the potential in the United States' building stock." 26th International Sustainable Development Research Society Conference. Budapest, Hungary, 15 July 2020. Oral presentation by J Arehart.

87 Arehart JH*, F Pomponi, B D'Amico, WV Srubar III. (2020). "How Much Carbon Can Construction Materials Store?" Actionable Science for Urban Sustainability (AScUS-2020). Segovia, Spain, 3-5 June 2020. // Poster presentation by J Arehart.

86 Srubar III, WV. (2020) "Toward Genetically Programmable Architecture: Biomimetic and Living Materials for the Built Environment." University of Illinois Urbana-Champaign, Champaign, IL USA. 11 March 2020. Invited seminar // Oral presentation by W Srubar.

85 Arehart, JH*, WV Srubar III. (2020). "Accounting for the carbon sequestration potential of concrete systems: OPC and Hempcrete". 2020 Residential Building Design & Construction Conference; State College, PA, 5 March. Oral Presentation by J Arehart.

84 Srubar, III WV. (2020). "Next-Gen Biomaterials: Innovation and Promise," CarbonPositive20, 3 March 2020. // Oral Presentation by W Srubar.

83 Srubar III WV. (2020). "Toward Genetically Engineered Cementitious Composites." Advanced Materials for Sustainable Infrastructure Development Gordon Research Conference, 25 February 2020. // Oral Presentation by W Srubar.

82 Srubar III, WV. (2019). "Engineered Living Materials at the Interface of Synthetic Biology, Materials Science, and Civil Engineering." Living Materials 2020 Conference. Saarbrücken, Germany. 12 February 2020. **Invited seminar** // Oral Presentation by W Srubar.

81 Srubar III, WV. (2019). "Engineered Living Materials: Integrating Synthetic Biology, Materials Science, and Civil Engineering." Georgia Institute of Technology Department of Civil and Environmental Engineering. Atlanta, GA USA. 18 November 2019. // Invited seminar

80 DeRousseau, MA*, JR Kasprzyk, WV Srubar III. (2020). "Low-Carbon Concrete Mixture Design using Multi-Objective Optimization." Advanced Materials for Sustainable Infrastructure Development Gordon Research Seminar (GRS), Ventura, CA USA. 23 February 2020. // Oral Presentation by M DeRousseau.

79 Srubar III, WV, CM Heveran*, SL Williams*, L Liang, A Nagarajan, SM Cook, MH Hubler, JC Cameron. (2019). "Genetically Engineered Cementitious Composites," 2019 American Concrete Institute (ACI) Fall Convention, Cincinnati, Ohio, USA. 21 October 2019 // Oral Presentation by W Srubar

78 Frazier, SD*, AN Aday*, J Osio-Norgaard*, WV Srubar III. (2019). "Biomimetic Antifreeze Polymers: Can they Mitigate Freeze-Thaw Damage?" 2019 American Concrete Institute (ACI) Fall Convention, Cincinnati, Ohio, USA. 21 October 2019 // Oral Presentation by S Frazier

77 Arehart, JH*, WV Srubar III. (2019). "Natural and Living Building Materials as Carbon Reduction Strategies in the Built Environment," Drawdown — Research to Action: The Science of Drawdown, State College, Pennsylvania, USA. 17 September 2019. // Poster Presentation by J Arehart

76 Noonan, K*, KM Hess*, WV Srubar III. (2019). "Moisture- And Freeze-Thaw-Induced Deterioration of Natural Fiber Composites With Low Fiber Contents" 3rd International Conference on Bio-based Building Materials, Belfast, Ireland. 26 June 2019. **Best Presentation Award** // Oral presentation by K Noonan

75 Artier, J, J Qiu, SL Williams*, M Hubler, WV Srubar III, S Cook, J Cameron. (2019). "Improving Desiccation Tolerance In Synechococcus sp PCC 7002 Towards Regeneration of Biomaterials." Synthetic Biology: Engineering, Evolution, and Design (SEED 2019). 24 June 2019, New York, New York, USA. // Poster Presentation by J Artier.

74 Williams*, SL, J Qui, J Artier, C Heveran*, S Cook, J Cameron, M Hubler, WV Srubar III. (2019). "Investigating the Successive Regeneration of Hydrogel-based Microbial Mortars." 2019 ASCE Engineering Mechanics Institute Conference. 20 June 2019, Pasadena, California, USA. // Oral Presentation by W Srubar.

73 Qiu, J, J Artier, SL Williams*, C Heveran*, S Cook, J Cameron, WV Srubar III, M Hubler. (2019). "A Novel Lightweight Gelatin-Based Composite Engaging Microbially Induced Calcite Precipitation (MICP) for Infrastructure Applications." 2019 ASCE Engineering Mechanics Institute Conference. Pasadena, California. 20 June 2019. // Poster Presentation by J Qui.

72 Gupta S, AN Aday*, WV Srubar III, HW Kua. (2019). "Repeatable Self-Healing by Combination of Biochar Immobilized Bacteria and Superabsorbent Polymer in Fiber Reinforced Concrete." 2019 ASCE Engineering Mechanics Institute Conference. Pasadena, California. 20 June 2019. // Oral Presentation by S Gupta

71 Aday* AN, J Osio-Norgaard*, Srubar III, WV. (2019). "pH- and Water-Responsive Polymers Improve Fresh- and Hardened-State Properties of Cement Paste," 10th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. Champaign, Illinois, USA. 16 June 2019. // Oral Presentation by A Aday

70 Srubar III, WV, SD Frazier*, AN Aday*, J Osio-Norgaard*. (2019). "Beyond AEAs: Can Biomimetic Antifreeze Polymers Enhance the Freeze-thaw Resistance of Cement Paste?" 10th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. Champaign, Illinois, USA. 16 June 2019. // Oral Presentation by W Srubar

69 Osio-Norgaard, J*, JP Gevaudan*, WV Srubar III. (2019). "Chloride Transport and Chloride Binding in Alkali-Activated Cement Paste, Mortar, and Concrete," 10th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference. Champaign, Illinois, USA. 16 June 2019. // Poster Presentation by J Osio-Norgaard

68 Gevaudan, JP*, WV Srubar III. (2019). "Cationic Stabilization of Acid-Resistant Low-Calcium Alkali-Activated Cements," 10th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; Champaign, Illinois, USA. 16 June 2019. // Poster Presentation by W Srubar

67 Williams, SL*, WV Srubar III. (2019). "Engineered Living Mortars: Structural Hydrogel Scaffolds that Enhance Microbial Biocementation," 10th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; Champaign, Illinois, USA. 16 June 2019. **Best Presentation Award** // Poster Presentation by SL Williams

66 DeRousseau, MA*, E Laftchiev, JR Kasprzyk, B Rajagopalan, WV Srubar III. (2019). "Predicting Field Concrete Strength Using Machine Learning and Hybridized Datasets," 10th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; Champaign, Illinois, USA. 16 June 2019. // Oral Presentation by MA DeRousseau

65 Gupta S, AN Aday*, WV Srubar III, HW Kua. (2019). "Repeatable Self-Healing by Combination of Biochar Immobilized Bacteria and Superabsorbent Polymer in Fiber Reinforced Concrete." 7th Internatonal Conference on Self-Healing Materials (ICSHM 2019); Yokohama, Japan. 4 June 2019. // Oral Presentation by S Gupta

64 Srubar III, WV. (2019) "Building with Bacteria: Applications of Synthetic Biology to Architecture and Civil Engineering." Materials Science Symposium. Rochester, NY USA. 24 May 2019. Invited seminar. // Oral presentation by W Srubar

63 Srubar III, WV. (2019). "Engineered Living Materials for Responsive and Regenerative Architecture." Coalition for National Security Research's (CNSR) Science, Technology, and Innovation Exchange (STIx). 22 May 2019, Washington, DC, USA. // Oral Presentation by W Srubar

62 Srubar III, WV. (2019) "Living Buildings: Synthetic Biology for Structural Building Materials." National Materials and Manufacturing Board Committee Focus Session: Materials and Manufacturing Enabled by Synthetic Biology. Washington, DC USA. 1 May 2019. // Oral presentation by W Srubar

61 Srubar III, WV. (2019) "Living Architecture: Synthetic Biology for Structural Building Materials." 2019 Materials Research Society (MRS) Spring Meeting: Synthetic Biology. Phoenix, Arizona USA. 25 April 2019. Invited seminar. // Oral presentation by W Srubar

60 Kreiger, BK*, SL Williams*, WV Srubar III. (2019). "Toward Living Building Materials for Indoor Environments" 2019 Architectural Engineering Institute National Conference, Washington, DC USA. 4 April 2019. **Best Presentation Award** // Poster presentation by B Kreiger

59 Gudladona SS, KA Baker, WV Srubar III. (2019). "Towards Real-Time Water- and Carbon-Responsive Buildings," Proceedings of the 2019 Architectural Engineering Institute (AEI) Conference, Washington, DC USA. // Oral Presentation by S Gudladona

58 Osio-Norgaard*, J, JP Gevaudan*, WV Srubar III. (2019). "Chloride Transport in Alkali-Activated Cement Paste, Mortar, and Concrete," 2019 American Concrete Institute (ACI) Spring Convention. Quebec City, Canada. 25 March 2019. // Oral Presentation by W Srubar.

57 Srubar III, WV. (2019) "Biomimetic Resilience: What Can We Learn from Nature?" 2019 NHERI Science Plan Workshop. Washington, DC USA. 18 March 2019. Invited seminar. // Oral presentation by W Srubar

56 Hess, KM*, PB Murray, WV Srubar III, AB Liel. (2019). "The Value Of Post-Earthquake Building Assessment And Its Role In Validating Predictive Earthquake Damage Models To Evaluate Building Repair Strategies," Engineering

Earthquake Research Institute (EERI) 2019 Annual Meeting, Vancouver, British Columbia, Canada. 7 March 2019. // Poster presentation by K Hess

55 Frazier, SD*, WV Srubar III. (2019). "Biomimetic Ice-binding Polymers: A Novel Deicing Salt Alternative." 2019 Transportation Research Board (TRB) Annual Meeting. 1 January 2014, Washington, DC USA. // Poster Presentation by S Frazier.

54 Qiu, J, J Artier, SL Williams*, C Heveran*, S Cook, J Cameron, R Gill, M Hubler, WV Srubar III. (2018). "Programmable Resurrection of Materials Engineered to Heal Exponentially Using Switches (PROMETHEUS)." DARPA ELM PI Review Meeting. November 2018, San Diego, California, USA. Oral Presentation by W Srubar.

53 Srubar III, WV. (2018) "Beyond Fly Ash: New Chemical Routes for Alkali-Activated Cements and Synthetic SCMs." 2018 American Concrete Institute (ACI) Fall Convention. Las Vegas, Nevada USA. 15 October 2018. Invited seminar. // Oral presentation by W Srubar

52 Srubar III, WV. (2018). "Engineering Natural Materials: From Once-Living to Still-Living Building Products." 2018 International Living Futures Institute (ILFI) Living Products Expo, Pittsburgh, Pennsylvania, USA. 11 September 2018. Invited seminar. // Oral Presentation by W Srubar

51 Heveran, CM*, L Liang, A Nagarajan, R Gill, S Cook, J Cameron, WV Srubar III. (2018). "Microbial-Precipitated Calcite with Tunable Morphology and Robust Nanomechanical Properties for Living Building Materials." World Congress of Biomechanics, Emerging Areas: Microbial Mechanics. Dublin, Ireland. 12 July 2018. // Poster presentation by C Heveran

50 DeRousseau, MA, JR Kasprzyk, WV Srubar III. (2018). "Incorporating Artificial Neural Network Models Into Multi-Objective Optimization: An Approach For Mixture Proportioning Sustainable And Durable Concrete Mixtures," 9th International Congress on Environmental Modelling and Software, 24-28 June 2018. Fort Collins, Colorado, USA. // Oral Presentation by M DeRousseau

49 Arehart, JH, WV Srubar III. (2018). "Living Materials Research Highlights & Carbon Storage Potential of the Global Built Environment," Carbon Leadership Forum Annual Meeting, 19 June 2018, New York, New York, USA. // Oral Presentation by J Arehart

48 Gevaudan, JP*, ZC Craun*, WV Srubar III. (2018). "Toward pH-Responsive Alkali-Activated Cements: Can Metals Play a Role?" 9th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; State College, Pennsylvania, USA. 11 June 2018. **Best Presentation Award** // Poster Presentation by JP Gevaudan

47 Aday, AN*, J Osio-Norgaard*, KEO Foster*, WV Srubar III. (2018). "Superabsorbent Biopolymers from Algae Mitigate Autogenous Shrinkage in Ordinary Portland Cement." 9th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; State College, Pennsylvania, USA. 11 June 2018. // Poster Presentation by A Aday

46 Delesky, EA*, SD Frazier*, JW Wallat*, WV Srubar III. (2018). "Ice Crystallization in Cement-based Materials: Can Nature (and Biomimicry) Help?" 9th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; State College, Pennsylvania, USA. 11 June 2018. // Oral Presentation by E Delesky

45 Wallat, JW*, JP Gevaudan*, WV Srubar III. (2018). "Beyond Fly Ash, Slag, and Clays: Synthetic N-A-S-H Precursors for Alkali-Activated Cements." 9th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; State College, Pennsylvania, USA. 11 June 2018. // Oral Presentation by J Wallat

44 Foster, KEO*, KM Hess*, GM Miyake, WV Srubar III. (2018). "Translucent Wood Composites: Fabrication, Characterization, and Mechanical Modeling." 2018 National Graduate Research Polymer Conference. 10-12 June 2018. Minneapolis, Minnesota, USA. // Poster Presentation by KEO Foster

43 Nagarajan A, CM Heveran*, L Liang, SM Cook, JC Cameron, RT Gill, MH Hubler, WV Srubar III. (2018). "Calcite production for building biohybrid living structural material from the cyanobacterium Synechococcus sp. PCC 7002." Synthetic Biology: Engineering, Evolution, and Design (SEED 2018). 3-7 June 2018, Scottsdale, Arizona USA. // Oral Presentation by A Nagarajan

42 Gevaudan, JP*, ZC Craun*, WV Srubar III. (2018). "On the Acid Resistance of Alkali-Activated Cements: What Role Does Magnesium Play?" 2018 ECI Alkali-Activated Materials and Geopolymers Conference; Tomar, Portugal. 29 May 2018. **Best Presentation Award** // Oral Presentation by JP Gevaudan

41 Hess, KM*, J Killgore, WV Srubar III. (2018). "Nanoscale Hygromechanical Behavior of Lignin." ASCE Engineering Mechanics Institute (EMI) Conference. Boston, Massachusetts, USA. 29 May 2018. // Oral presentation by K Hess

40 Heveran, CM*, L Liang, JP Gevaudan, A Nagarajan, R Gill, S Cook, J Cameron, WV Srubar III. (2018). “Multiscale Mechanics Of Biogenic Cements From Genetically Modifiable Bacteria For The Creation Of Living Building Materials.” ASCE Engineering Mechanics Institute (EMI) Conference. Boston, Massachusetts, USA. 29 May 2018. // Poster presentation by C Heveran

39 Nagarajan A, L Liang, C Heveran*, S Cook, J Cameron, R Gill, M Hubler, WV Srubar III. (2017). “Programmable Resurrection of Materials Engineered to Heal Exponentially Using Switches (PROMETHEUS).” DARPA ELM PI Review Meeting. Charleston, South Carolina, USA. 22 May 2019. // Oral Presentation by W Srubar

38 Srubar III, WV. (2018). “Living Buildings: The New Frontier in Integrated Design” 2018 Architectural Engineering Institute National Conference, 6 April 2018. Omaha, Nebraska USA.

37 Srubar III, WV. (2018). “Architectural Engineering PhD — Is it Right for You?” 2018 Architectural Engineering Institute National Conference, 6 April 2018. Omaha, Nebraska USA.

36 Srubar III, WV. (2018). "Cement, Concrete, and Carbon." 2018 American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI) Structures Congress. 19-21 April 2018. Fort Worth, Texas, USA.

35 Srubar III, WV. (2018). "Conversations about Carbon: The Embodied Carbon Network and the SE 2050 Initiative." 2018 American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI) Structures Congress. 19-21 April 2018. Fort Worth, Texas USA.

34 Kasprzyk J, R Smith, W Raseman, M DeRosseau, L Dilling, K Ozekin, R Summers, B Rajagopalan, B Livneh, F Rosario-Ortiz, L Sprain, WV Srubar III. (2017). “Collaborative Workshops for Assessment and Creation of Multi-Objective Decision Support for Multiple Sectors.” American Geophysical Union (AGU) 2017 Fall Meeting, 14 December 2017. // Poster Presentation by J Kasprzyk

33 Nagarajan A, L Liang, C Heveran*, S Cook, J Cameron, R Gill, M Hubler, WV Srubar III. (2017). “Programmable Resurrection of Materials Engineered to Heal Exponentially Using Switches (PROMETHEUS).” DARPA ELM PI Review Meeting. 5 November 2017, Austin, Texas. // Poster Presentation by A Naragarajan, L Liang, and C Heveran

32 Nagarajan A, L Liang, C Heveran*, S Cook, J Cameron, R Gill, M Hubler, WV Srubar III. (2017). “Programmable Resurrection of Materials Engineered to Heal Exponentially Using Switches (PROMETHEUS).” DARPA ELM PI Review Meeting. 5 November 2017, Austin, Texas. // Oral Presentation by W Srubar

31 Arehart, JH, WV Srubar III. (2017). “Energy Savings Potential of Transparent Wood Composite Windows in Commercial Buildings.” Symposium for Sustainable Infrastructure – 2, Boulder, Colorado, USA. 3 November 2017. **Best Presentation Award** // Poster Presentation by J Arehart

30 Nagarajan, A, L Liang, CM Heveran*, SM Cook, J Cameron, R Gill, M Hubler, WV Srubar III. (2017). “Cyano-calcite Production for Building Living Structural Materials.” 43rd Annual Midwest/Southeast Photosynthesis Meeting, Turkey Run State Park, Indiana, USA. 29 October 2017. // Poster Presentation by A Nagarajan

29 Foster, KEO*, WV Srubar III, GM Miyake. (2017). “Transparent Wood-Based Composites.” 2017 American Chemical Society Rocky Mountain Regional Meeting, Loveland, Colorado, USA. 26 October 2017. // Oral Presentation by KEO Foster

28 Delesky, EA*, WV Srubar III. (2017). “Synthetic Routes from Ice Binding Proteins to Biomimetic Antifreeze Polymers.” 3rd International Ice-Binding Proteins Conference, Rehovot, Israel, 16 August 2017. // Oral and Poster Presentations by E Delesky

27 Colón-Ortíz, G+, JP Gevaudan*, WV Srubar III. (2017). “Can Zeolitic Cements Fix Our Aging Infrastructure?” 2017 National Leadership Alliance Symposium, Hartford, Connecticut, USA. 29 July 2017. // Oral Presentation by G Colón-Ortíz

26 Srubar III, WV. (2017). "Structural Plastics: Polymer Additive Manufacturing in Civil Engineering Research and Education." National Science Foundation (NSF) Workshop on Additive Manufacturing for Civil Infrastructure Design and Construction. Washington, DC, USA. 13 July 2017. Invited seminar. // Oral Presentation by W Srubar

25 Gevaudan, JP*, A Caicedo-Ramirez*, MT Hernandez, WV Srubar III. (2017). “Acid Resistance of Slag-based Alkali-Activated Cements with Heavy Metals.” 8th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; Atlanta, Georgia, USA. 27 June 2017. // Oral Presentation by JP Gevaudan

24 Foster, KEO*, WV Srubar III, GM Miyake. (2017). “Transparent Wood-Based Composites.” American Chemical Society (ACS) Summer School on Green Chemistry and Sustainable Energy, Colorado School of Mines. 23 June 2017. // Poster Presentation by KEO Foster

23 Gevaudan, JP*, WV Srubar III. (2017). "Mineralogical Stability of Metakaolin-based Alkali-Activated Cements." Proceedings of the XIV Durability of Materials and Components (DBMC) Conference, Ghent, Belgium. 30 May 2017. **Keynote address** // Oral Presentation by W Srubar

22 Srubar III, WV. (2017). "Kick-Off Presentation: Programmable Resurrection of Materials Engineered to Heal Exponentially Using Switches (PROMETHEUS)." DARPA ELM PI Review Meeting. Miami, Florida, USA. 26 May 2017 // Oral Presentation by W Srubar

21 Srubar III, WV. (2017). "Sustainable Infrastructure Materials Laboratory." United States Army Engineering Research and Development Center (ERDC). Vicksburg, Mississippi, USA. 28 April 2017. // Oral Presentation by W Srubar

20 Srubar III, WV, JR Kasprzyk. (2017). "Multi-Criteria Design Optimization of Sustainable and Resilient Concrete." 2017 Architectural Engineering Institute (AEI) Conference, Oklahoma City, Oklahoma, USA. 12 April 2017. // Oral Presentation by W Srubar

19 Srubar III, WV, JR Kasprzyk. (2017). "Design Optimization of Sustainable and Multi-Hazard Resilient Concrete Mixtures." 2017 Structural Engineering Institute (SEI) Conference, Denver, Colorado, USA. 8 April 2017. // Oral Presentation by W Srubar

18 Souto-Martinez, A*, WV Srubar III. (2017). "Whole-Building Life-Cycle Assessment: Incorporating Carbon Sequestration Potential of Reinforced Concrete." 2017 Structural Engineering Institute (SEI) Conference, Denver, Colorado, USA. 6 April 2017. // Oral Presentation by A Souto-Martinez

17 Gevaudan, JP*, WV Srubar III. (2017). "Advances in Alkali-Activated Cements." 2017 Structural Engineering Institute (SEI) Conference, Denver, Colorado, USA. 6 April 2017. // Oral Presentation by JP Gevaudan

16 Delesky, EA*, KM Hess*, WV Srubar III. (2017). "Bio-Inspired Materials Design for Resilient and Sustainable Construction." 2017 Structural Engineering Institute (SEI) Conference, Denver, Colorado, USA. 6 April 2017. // Oral Presentation by K Hess

15 Srubar III, WV. (2016). "Living Materials: The New Definition for the Material World." 2016 International Living Futures Institute (ILFI) Living Products Expo, Pittsburgh, Pennsylvania, USA. 15 September 2016. Invited seminar. // Oral Presentation by W Srubar

14 Srubar III, WV, J Osio-Norgaard*, JR Kasprzyk, L Sprain. (2016). "Multi-Objective, Multi-Hazard Design Optimization of Sustainable and Durable Concrete Mixtures." American Concrete Institute (ACI) Fall Convention, Philadelphia, Pennsylvania, USA. 25 October 2016. // Oral Presentation by W Srubar

13 Gevaudan, JP*, KM Campbell, TJ Kane, RM Shoemaker, WV Srubar III. (2016). "Short-Term Mineralogical Dynamics of Metakaolin-based Alkali-Activated Cement (AACs)." 7th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; Evanston, Illinois, USA. 13 July 2016. // Oral Presentation by JP Gevaudan

12 Srubar III, WV, JR Kasprzyk. (2016). "Design of Sustainable and Resilient Concrete Mixtures via Multi-Objective Optimization." 2016 National Ready-Mix Concrete Association (NRMCA) International Concrete Sustainability Conference, Washington, DC, USA. 17 May 2016. // Oral Presentation by W Srubar

11 Srubar III, WV. (2016). "AEI Learn: Challenges and Opportunities of a Modern-day Architectural Engineering Education." 2016 Architectural Engineering Institute (AEI) Forum, Worcester Polytechnic Institute, Worcester, Massachusetts, USA. 1 April 2016. **Keynote address** // Oral Presentation by W Srubar

10 Evans, T, D Serlin, SD Frazier*, WV Srubar III. (2016). "Oligomerization of Glycerol and its Extraction from Crude Glycerol." 2016 Emerging researchers National Conference in STEM. Washington, DC, USA. 26 February 2016. **Best Presentation Award** // Poster Presentation by T Evans

9 Mauney, DC, C Suwongso, WV Srubar III, LD Montoya. (2015). "Experimental Study of Active Flow and Photocatalytic Materials for Indoor Air Quality Applications." 34th American Association for Aerosol Research Annual Conference; Minneapolis, Minnesota, USA. 14 October 2015. // Oral Presentation by L Montoya

8 Bennett, PJ*, WV Srubar III. (2015). "Hygrothermal Durability of Exterior Stone Wool Insulation in Rain Screen Wall Assemblies." Oak Ridge National Laboratory, Oak Ridge Tennessee. 23 July 2015. // Oral Presentation by P Bennett and W Srubar

7 Gevaudan, JP*, WV Srubar III. (2015) "Characterization and Treatment of Low-Quality Fly Ash for the Synthesis of Geopolymer Cements." 6th Annual American Ceramics Society (ACerS) Cements Division Advances in Cement-based Materials Conference; Manhattan, Kansas. 20 July 2015. // Poster Presentation by JP Gevaudan

6 Frazier, SD*, WV Srubar III. (2015). "Chemical Modification of Protein-based Adhesives for Construction Applications." 23rd World Forum on Advanced Materials Conference. 13 May 2015. // Poster Presentation by S Frazier

5 Barnhouse, PW*, WV Srubar III. (2015). “Improving the Performance of Macroporous Recycled-Aggregate Pervious Concrete.” 2015 ACI Spring Convention, Kansas City, MO, USA. 14 April 2015. // Oral Presentation by P Barnhouse

4 Traeger, LS+, DN Dorr+, SD Frazier*, KM Hess*, WV Srubar III. (2015). “Sustainable Protein-based Materials for Temporary Construction.” 2015 ASCE Mountain Regional Conference, University of New Mexico, Albuquerque, New Mexico, USA. 10 April 2015. // Oral Presentation by L Traeger

3 Srubar III, WV, SL Billington. (2013). “Improving the Hygrothermal Durability Performance of Lignocellulose-Biopolymer Composite Materials via Chemical Modification.” NSF Durability of Polymers and Polymer Composites Workshop: Current Challenges and Future Prospects, Monterey, California, USA. 6 March 2013. **Best Presentation Award** // Poster Presentation by W Srubar

2 Srubar III, WV, SA Miller, SL Billington (2013). “Service Life Prediction of Fully Biorenewable Wood-Plastic Composites: A Spatiotemporal Approach.” Service Life Prediction of Polymeric Materials: Vision for the Future, Monterey, California, USA. 4 March 2013. // Oral Presentation by W Srubar

1 Ryan, CA, WV Srubar III, SL Billington, and CS Criddle. (2010). “Characterization and Anaerobic Degradation of Poly(hydroxybutyrate-co-hydroxyvalerate)/Oak Wood Flour Composites.” 18th Annual BioEnvironmental Polymer Society (BEPS) Conference. Toronto, Canada. 14 October 2010. // Oral Presentation by C Ryan

Other Presentations

73 Srubar III, WV. (2023). “Low-Carbon Building Materials.” Rocky Mountain Materials Research Society Meeting. 15 May 2023.

72 Srubar III, WV. (2023). “Engineered Living Building Materials.” Montana State University Engineered Living Materials Journal Club. 13 November 2023.

71 Srubar III, WV. (2023). “Transforming the Built Environment into a Carbon Sink.” Deloitte. 5 May 2023.

70 Srubar III, WV. (2023). “Biomimetic and Engineered Living Materials.” Schmidt Futures Institute. 18 October 2023.

69 Srubar III, WV. (2022). “Growing the Cities of the Future.” 2022 Turner Innovation Summit. 16 November 2022. // Invited seminar

68 Srubar III, WV. (2022). “Cement Decarbonization Using Microalgae.” Materials Science and Engineering Symposium. University of Colorado Boulder. 12 August 2022. // Oral Presentation by W Srubar

67 Junglcaus, MJ, WV Srubar III. (2022). “Natural and Living Building Materials as Carbon Reduction Strategies in the Built Environment.” NSF BEST Workshop, University of Colorado Boulder. 19 April 2022. // Oral Presentation by M Jungclaus

66 Srubar III, WV. (2022). “Transforming Buildings into Carbon Sinks.” GAF Innovation Series. 13 April 2022. // Invited seminar

65 Srubar III, WV, CE White, M Matar*, C Pu, X Chen*, K Gong, Y Zhang, H Brimelow*. (2021). “Biogenic Sulfuric Acid-Resistant Geopolymer Cements,” ARPA-E Cements Meeting. 15 October 2021. // Oral Presentation by W Srubar.

64 Srubar III, WV. (2021). “Transforming Buildings into Carbon Sinks,” Austin Energy Green Building Professional Development Seminar: Embodied Carbon Matters. 6 July 2021. // Oral Presentation by W Srubar.

63 Srubar III, WV. (2021). “Biogenic Carbon-Storing Material Technologies: The Current Landscape,” Carbon Leadership Forum Biogenic Materials Webinar. 25 June 2021. // Oral Presentation by W Srubar.

62 Srubar III, WV. (2021). "Green Innovation: A Savior? Rethinking Technology." 2021 National Home Builders Climate Action Webinar. 2 June 2021. // Oral Presentation by W Srubar.

61 Srubar III, WV, CE White, M Matar*, C Pu, X Chen*, Y Zhang. (2021). “Geopolymer Cements: Resistance-Engineered Sewer Infrastructure for Longevity using Innovative, Energy-efficient, Synthesis Techniques (RESILIENT),” ARPA-E Innovation Summit. 24 May 2021. // Poster Presentation by C Pu.

60 Srubar III, WV. (2021). “Carbon-Storing Material Technologies: The Current Landscape,” ARPA-E Carbon Negative Building Materials Workshop. 23 March 2021. // Oral Presentation by W Srubar.

59 Srubar III, WV. (2021). “Biomimetic and Engineered Living Materials for the Built Environment.” University of Bath, BRE Centre for Innovative Construction Materials. 17 March 2021. **Invited seminar** // Oral Presentation by W Srubar.

58 Srubar III, WV. (2021) “Biomimetic and Living Materials for the Built Environment.” California Institute of Technology, Pasadena, CA USA. 4 February 2021. **Invited seminar** // Oral presentation by W Srubar.

57 Srubar III, WV. (2020). “Toward Genetically Programmable Architecture: Biomimetic and Living Materials for the Built Environment.” Ohio State University, Columbus, OH USA. 13 November 2020. **Invited seminar** // Oral presentation by W Srubar.

56 Srubar III, WV, CE White, M Matar*, C Pu, X Chen*, K Gong. (2020). “Geopolymer Cements: Resistance-Engineered Sewer Infrastructure for Longevity using Innovative, Energy-efficient, Synthesis Techniques (RESILIENT),” ARPA-E Cements Meeting. 19 October 2020. // Oral Presentation by W Srubar.

55 Srubar III, WV. (2020). “Can We Transform the Built Environment from a Carbon Emitter into a Carbon Sink?” Metro Denver Colorado Renewable Energy Society, 15 October 2020. Boulder, Colorado USA. // Oral Presentation by W Srubar

54 Srubar III, WV. (2020). “Genetically Programmable Biopolymer and Biomineral Production for Growing Living Structural Materials,” Army Center for Synthetic Biology Workshop. 8 August 2020. // Oral Presentation.

53 Srubar III, WV. (2020). “Biomimetic Antifreeze Polymers: Novel Additives for Freeze-Thaw Prevention in Cement Paste & Concrete,” Presentation to Cold Regions Research Engineering Laboratory (CRREL), 10 January 2020. // Oral Presentation.

52 Srubar III, WV. (2019). “Why Embodied Energy & Embodied Carbon and Why Now?” Colorado Green Building Guild (CGBG). 3 December 2019. // Oral Presentation by W Srubar.

51 Srubar III, WV. (2019). “Human + Nature: Engineering Living Materials, Buildings, and Communities.” Graduate Student Visit Day Plenary Lecture, 15 February 2019. Boulder, Colorado USA. // Oral Presentation by W Srubar

50 Srubar III, WV. (2018). “Living Building Materials.” Google X Presentation, 22 March 2018. Boulder, Colorado USA. // Oral Presentation by W Srubar

49 Srubar III, WV. (2018). “Living Buildings: From Sustainable to Regenerative Architecture.” University of Colorado Boulder Research and Innovation Office Sustainability Blitz, 20 March 2018. Boulder, Colorado USA.

48 Srubar III, WV. (2018) “Building with Biology: Environmentally Responsive Materials for Resilient and Regenerative Architecture.” Washington State University Department of Civil and Environmental Engineering. Pullman, Washington USA. 22 October 2018. **Invited Seminar.** // Oral Presentation by W Srubar

47 Colón-Ortíz, G+, JP Gevaudan*, WV Srubar III. (2017). “Effect of Structure-Directing Agents on Calcium-Free Alkali-Activated Cements.” 2017 Summer Multicultural Access Research Training (SMART) Program, University of Colorado at Boulder. 10 August 2017. // Poster Presentation by G Colón-Ortíz

46 Srubar III, WV. (2017). “Advances in Sustainable Cements.” Ecuadorian Ministry of Higher Education, Science, Technology, and Innovation. 31 May 2017. // Oral Presentation by W Srubar

45 Gevaudan, JP*, WV Srubar III. (2017). “Investigations in Alkali-Activated Cements.” Saint-Gobain Research and Development Center. 26 May 2017. // Oral Presentation by JP Gevaudan

44 Delesky, EA*, WV Srubar III. (2017) “Biomimetic Antifreeze Polymers for Cryopreservation.” Quantitative Biology Student Symposium, University of Colorado Boulder. 25 May 2017. // Poster Presentation by E Delesky

43 Srubar III, WV. (2017). “Biocementation and Alkali-Activation: Advances in Alternative Cements.” US Engineering Research and Development Center. 28 April 2017. **Invited Seminar.** // Oral Presentation by W Srubar

42 Craun, Z+, JP Gevaudan*, WV Srubar III. (2017). "Feasibility of Treating High-Sulfate Content Water with Waste Eggshells." 2017 Special Undergraduate Enrichment Programs (SUEP) Scholars Conference, Boulder, Colorado USA. 8 April 2017. // Poster Presentation by Z Craun

41 Foster, B, WV Srubar III. (2016). "ReVision Solutions: Research Progress Update II." University of Colorado Boulder. 30 November 2016. // Oral Presentation by B Foster and W Srubar

40 Srubar III, WV. (2016). "Sustainable Infrastructure Materials Laboratory." BASF Research Collaboration Videoconference. University of Colorado Boulder. 10 November 2016. // Oral Presentation by W Srubar

39 Foster, B, WV Srubar III. (2016). "ReVision Solutions: Research Progress Update I." University of Colorado Boulder. 23 June 2016. // Oral Presentation by B Foster and W Srubar

38 Srubar III, WV. (2016). “Sustainable Infrastructure Materials Laboratory.” 2016 CU Boulder Shared Instrumentation Network Open House, University of Colorado Boulder. 10 August 2016. // Oral Presentation by W Srubar

37 Delesky, EA*, WV Srubar III. (2016). “Evaluating the Potential for Ice Binding Proteins (IBPs) to Reduce Freeze-Thaw Damage in Civil Infrastructure.” Symposium for Sustainable Infrastructure, University of Colorado Boulder. 23 May 2016. // Poster Presentation by E Delesky

36 Hess, KM*, WV Srubar III. (2016). “A Review of Natural Fiber Composites Research from the Sustainable Infrastructure Materials Laboratory (SIMLab) at the University of Colorado Boulder.” Symposium for Sustainable Infrastructure, University of Colorado Boulder. 23 May 2016. // Poster Presentation by K Hess

35 Souto-Martinez, A*, WV Srubar III. (2016). “Lifecycle Assessment (LCA) of Concrete Infrastructure: Incorporating Service-Life Prediction and Carbon Sequestration Potential.” Symposium for Sustainable Infrastructure, University of Colorado Boulder. 23 May 2016. // Poster Presentation by A Souto-Martinez

34 Gevaudan, JP*, WV Srubar III. (2016). “Exploring the Acid Resistance of Alkali-Activated Cements (AACs): Improving the Sustainability and Resilience of Urban Infrastructure.” Symposium for Sustainable Infrastructure, University of Colorado Boulder. 23 May 2016. // Poster Presentation by JP Gevaudan

33 Srubar III, WV. (2016). “Bio- and Geopolymer Materials and Structures.” 2016 Research Blitz Presentation to the Office of the Vice Chancellor for Research, University of Colorado Boulder. 15 April 2016. // Oral Presentation by W Srubar

32 Srubar III, WV. (2016). “Sustainability, Green Buildings, LEED.” University of Colorado Boulder AREN 4317: Senior Capstone. 29 January 2016. Guest Lecture // Oral Presentation by W Srubar

31 Srubar III, WV. (2015). “Bioaerogels, Bioadhesives & Biocomposites.” DuPont Technical Research Meeting, University of Colorado Boulder. 14 December 2015. // Oral Presentation by W Srubar

30 Srubar III, WV. (2015). “Sustainable Infrastructure Materials Laboratory.” Chinese Green Building Council Technical Research Meeting, University of Colorado Boulder. 19 November 2015. // Oral Presentation by W Srubar

29 Srubar III, WV, SD Frazier*. (2015). “Recycling Polycarbonate: Scientific Approach.” ReVision Solutions Project Kick-Off Meeting. 11 November 2015. // Oral Presentation by W Srubar and S Frazier

28 Srubar III, WV. (2015). “Biobased Hydrogel Foams for Next-Generation Scaffolds, Packaging, and Insulation Materials.” Advanced Industry Accelerator Grant Program Finalist Presentation. 8 October 2015. // Oral Presentation by W Srubar

27 Srubar III, WV. (2015). “Introduction to Architectural Engineering.” University of Colorado Boulder AREN 1316: Introduction to Architectural and Civil Engineering. 1 September 2015. Guest Lecture. // Oral Presentation by W Srubar

26 Srubar III, WV. (2015). “Sustainable Materials.” University of Colorado Boulder EVEN 4834: Environmental Sustainability. 20 April 2015. Guest Lecture. // Oral Presentation by W Srubar

25 McCue, T+, WV Srubar III. (2015). “Processing and Mechanical Characterization of Natural Fiber-Reinforced Poly(glycolic acid) (PGA) Composite Materials for Construction.” Discovery Learning Apprenticeship Poster Symposium; Boulder, Colorado, USA, 17 April 2015. // Poster Presentation by T McCue

24 Srubar III, WV. (2015). “Chronic Structural Deterioration and Its Impact on Seismic Risk.” University of Colorado Boulder Student Chapter of the Engineering Earthquake Research Institute. 20 February 2015. // Oral Presentation by W Srubar

23 Srubar III, WV. (2015) “Sustainable Infrastructure Materials Laboratory.” BASF Technical Research Meeting, University of Colorado Boulder. 19 February 2015. // Oral Presentation by W Srubar

22 Srubar III, WV. (2015). “State-of-the-Art Building Materials.” University of Colorado Boulder AREN 4317: Senior Capstone. 9 February 2015. Guest Lecture. // Oral Presentation by W Srubar

21 Srubar III, WV. (2014). “Sustainable Materials: Challenges and Opportunities.” University of Colorado Boulder CVEN 4317: Senior Capstone. 23 April 2014. Guest Lecture. // Oral Presentation by W Srubar

20 Srubar III, WV. (2014). “Materials and the Environment.” University of Colorado Boulder CVEN 4484: Environmental Microbiology, Guest Lecture. 10 April 2014. Guest Lecture. // Oral Presentation by W Srubar

19 Srubar III, WV. (2013). “Evaluating the Long-Term Sustainability of Green Infrastructure Materials: A Spatiotemporal Approach.” Johns Hopkins University, Department of Civil Engineering. Baltimore, Maryland, USA. 19 March 2013. **Invited seminar.** // Oral Presentation by W Srubar

18 Srubar III, WV. (2013). “Evaluating the Long-Term Sustainability of Innovative Materials: A Spatiotemporal Approach.” University of Colorado Boulder, Department of Civil, Environmental, and Architectural Engineering. Boulder, Colorado, USA. 11 March 2013. **Invited seminar.** // Oral Presentation by W Srubar

17 Srubar III, WV. (2013). “Evaluating the Long-Term Sustainability of Green Infrastructure Materials: A Spatiotemporal Approach.” Georgia Institute of Technology, Department of Civil and Environmental Engineering. Atlanta, Georgia, USA. 26 February 2013. **Invited seminar.** // Oral Presentation by W Srubar

16 Srubar III, WV. (2013). “Introduction to Structural Engineering.” Stanford University CEE 10: Introduction to the Civil and Environmental Engineering Majors. 11 February 2013. Guest Lecture. // Oral Presentation by W Srubar

15 Srubar III, WV, CA Ryan. (2013). "In-Service / Out-of-Service Performance of Biobased Composites." Stanford University John A. Blume Center for Earthquake Engineering Affiliates Meeting. 1 February 2013. // Poster Presentation by W Srubar

14 Srubar III, WV. (2012). "Long-Term Durability of Biopolymeric Composites for Construction." Exponent, Inc. Building and Structures Group. 11 December 2012. **Invited seminar.** // Oral Presentation by W Srubar

13 Billington, SL, WV Srubar III, SA Miller. (2012). "Predicting the Service Life of Biobased Composites for Green Construction." 20th BioEnvironmental Polymer Society Annual Meeting. 18 September 2012. // Oral Presentation by S Billington

12 Srubar III, WV. (2012). "Moisture-Induced Deterioration Modeling of Biorenewable Composites for Construction." John A. Blume Earthquake Engineering Center Graduate Student Summer Seminar Series, Stanford University, Stanford, California, USA. 18 June 2012. // Oral Presentation by W Srubar

11 Srubar III, WV. (2012). "Biorenewable Composites for Construction." Princeton University Department of Civil and Environmental Engineering, Princeton, New Jersey, USA. 7 February 2012. **Invited seminar.** // Oral Presentation by W Srubar

10 Srubar III, WV. (2012). "Biorenewable Composite Materials." Stanford University CEE 320: Center for Integrated Facilities Engineering Seminar. 25 January 2012. // Oral Presentation by W Srubar

9 Srubar III, WV. (2011). "Modeling the Water Transport Kinetics in Biobased Composites." John A. Blume Earthquake Engineering Center Graduate Student Summer Seminar Series, Stanford University, Stanford, California, USA. 19 June 2011. // Oral Presentation by W Srubar

8 Srubar III, WV. (2011). "Engineering Structures." Women in Engineering Career Day, Stanford University, Stanford, California USA. 9 March 2011. // Oral Presentation by W Srubar

7 Srubar III, WV. (2011). "Structural Biobased Composites: Design, Development, Durability." Chi Environmental Conference, Stanford University, Stanford, California USA. 14 January 2011. // Oral Presentation by W Srubar

6 Srubar III, WV. (2010). "Biocomposites: Mechanisms, Modeling, and Mitigation of Hygrothermal Effects." John A. Blume Earthquake Engineering Center Graduate Student Summer Seminar Series, Stanford University, Stanford, California. 20 June 2010. // Oral Presentation by W Srubar

5 Srubar III, WV, SL Billington. (2010). "Nonlinear Micromechanical Modeling of Structural Biobased Composite Materials." International Workshop on Multiscale & Multiphysics Processes in Geomechanics, Stanford University, Stanford, California. 12 June 2010. // Poster Presentation by W Srubar

4 Srubar III, WV, AT Michel, P Cameron. (2009). "Accelerated Weathering and Degradation Modeling of Biobased Composites." California Environmental Protection Agency Progress Review, Stanford University, Stanford, California, USA. 2 December 2009. // Poster Presentation by W Srubar

3 Srubar III, WV. (2008). "Communicating the Importance and Principles of Sustainable Development to Civil Engineers." The University of Texas at Austin College of Architecture Sustainable Urbanism Symposium, Austin, Texas. 5 March 2008. // Oral Presentation by W Srubar

2 Srubar III, WV. (2007). "Standing on the Shoulders of Giants: An Evolutionary History of Architectural Structural Systems." The University of Texas at Austin Department of Civil, Architectural, and Environmental Engineering Graduate Structural Engineering Seminar, Austin, Texas, USA. 14 October 2007. // Oral Presentation by W Srubar

1 Srubar III, WV. (2006). "Architecture and Engineering: Assessing the Importance of Aesthetic Design in Structural Engineering Curricula." Texas A&M University Student Research Symposium, College Station, Texas, USA. 26 April 2006. **Best Presentation Award** // Oral Presentation by W Srubar

VI. Sponsored Research Projects

Affiliations of Principal Investigators (PIs) and Co-Principal Investigators (Co-PIs) are noted if outside of the Department of Civil, Environmental, and Architectural Engineering.

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30 Living Light, Living Surfaces, and Living Structures for Space Architecture

Sponsor: Schmidt Futures
Award: $2,500,000
PI: Wil V. Srubar III

Period: August 2022 – August 2027

Objective: The primary objectives of this project are to engineer living materials that are capable of (1) producing living light by leveraging the natural process of bioluminescence, (2) removing H_2O, CO_2, and volatile organic compounds (VOCs) from indoor air, and (3) biomineralizing lunar and Martian regolith in microgravity for new applications in space architecture.

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29 Reinforced Concrete Repair by an Evolving Visualized Internal Vascular Ecosystem (RC-REVIVE)

Sponsor: Defense Advanced Research Projects Agency (DARPA)
Award: $10,465,242
PI: Mija Hubler
Co-PI: Wil V. Srubar III, Christopher Senseney, Srikanth Madabhushi
Co-PI: Amir Farnam, Chris Sales, Ahmad Najafi (Drexel University)
Co-PI: Mohammad Pour-Ghaz (University of North Carolina)
Period: February 2023 – January 2027

Objective: The primary objective of this project is to vascularize cementitious materials with living biological materials to facilitate self-healing and regeneration of concrete infrastructure. The team will explore and study a co-culture of bacteria and fungi capable of self-sustainment and ongoing biological self-healing in cracked or deteriorated concrete.

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28 A Photosynthetic Route to Carbon-Negative Portland Limestone Cement Production

Sponsor: Advanced Research Projects Agency – Energy (ARPA-E)
Award: $3,193,063
PI: Wil V. Srubar III
Co-PI: Catharina Alves-de-Souza (University of North Carolina Wilmington)
Co-PI: Michael Guarnieri (National Renewable Energy Laboratory)
Period: October 2022 – September 2025

Objective: The primary objective of this project is to manufacture and commercialize a net-CO_2-storing portland limestone cement using biogenic limestone ($CaCO_3$) produced from calcifying microalgae. The economics of the cement will be optimized by (1) maximizing biomass productivity of coccolithophore cultures through a combination of artificial strain selection, genetic engineering, and growth optimization and (2) valorization of non-$CaCO_3$ algal biomass into high-value co-products.

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27 Carbon-Storing Biogenic Calcium Carbonate from Coccolithophores for Portland Cement Production

Sponsor: Breakthrough Energy Foundation
Award: $500,000
PI: Wil V. Srubar III
Period: September 2022 – August 2023

Objective: The primary objective of this project is to produce biogenic $CaCO_3$ using coccolithophores, calcifying marine microalgae that sequester and store CO_2 in inorganic minerals ($CaCO_3$) and organic polymers, such as proteins, lipids, carbohydrates, through biological direct air capture (DAC) via calcification and photosynthesis.

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26 Advanced Life-Cycle Assessment (LCA): Probabilistic LCA and Biogenic Carbon Accounting

Sponsor: Austin Energy
Award: $305,000
PI: Wil V. Srubar III
Period: July 2022 – December 2027

Objective: The primary objective of this project is to apply advanced stochastic modeling techniques to life cycle assessment to demonstrate new approaches for integrating variability and uncertainty. In addition, new methods for accounting for biogenic carbon storage will be developed.

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25 FMRG: Eco: Process-Structure-Property Relationships of 3D Printed Earth Materials and Structures

Sponsor: National Science Foundation

Award: $2,296,470
PI: Lola Ben-Alon (Columbia University)
Co-PI: Wil V. Srubar III
Co-PI: Shiho Kawashima (Columbia University)
Period: January 2022 – December 2025

Objective: The primary objective of this project is to characterize optimal mix designs for 3D printed earth materials and structures, linking microstructural development and soil science with material and structural property characterization and optimization of 3D printing methods.

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24 Embedded Entrepreneur Initiative (EEI) Program

Sponsor: Defense Advanced Research Projects Agency (DARPA)
Award: $250,000
PI: Wil V. Srubar III
Co-PIs: Sherri Cook, Mija Hubler, Jeff Cameron
Period: April 2021 – December 2022

Objective: The primary objective of this project is to accelerate commercialization of the engineered living material (ELM) technology previously engineered by researchers at the University of Colorado Boulder. The project supports achievement tech-to-market milestones by providing funds to hire an embedded entrepreneur to accelerate commercialization.

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23 Algae-grown Engineered Living Building Materials

Sponsor: Prometheus Materials, Inc.
Award: $95,880
PI Mija Hubler
Co-PIs: Wil V. Srubar III, Sherri Cook, Jeff Cameron
Period: August 2021 – June 2022

Objective: The primary objective of this project is to engineer a high-performance living building material using algae species that undergo microbial biomineralization by incorporating coarse aggregate and steel-embedded reinforcement or fibers to improve mechanical performance.

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22 Novel Agar-Based Binder Materials for Use in Flexible Pavement Applications

Sponsor: Colorado Department of Transportation
Award: $82,568
PI: Wil V. Srubar III
Period: October 2020 – September 2023

Objective: The primary objective of this project is to contribute to the advancement of direct alternative materials for petroleum-based for petroleum-based asphalt binders. Highly concentrated mixtures of agar hydrogels (*i.e.,* 10% agar) possess similar viscoelastic and temperature-dependence properties when compared to conventional petroleum-based binders (*e.g.*, bitumen, tar) which may make agar well-suited as an alternative binder for pavement applications.

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21 APUP: Phase-Change Thermal Energy Storage

Sponsor: Wright Brothers Institute
Award: $50,000
PI: Wil V. Srubar III
Period: February 2021 – September 2021

Objective: The primary objective of this project is to engineer high-performance wood-templated phase-change material for use in building envelopes. Phase-change materials will be encapsulated by wood templates and tested for their thermal energy storage and assessed for their use in building energy efficiency applications.

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20 Lab Venture Challenge: Minus Materials

Sponsor: Colorado Advanced Industries Accelerator

Award: $125,000
PI: Wil V. Srubar III
Period: March 2021 – March 2023

Objective: The primary objective of this project is to produce and commercialize a net-CO_2-storing portland limestone cement (Type IL) using calcareous photosynthetic microalgae. Most cement-related emissions are caused by calcining quarried limestone, $CaCO_3$, to CaO, thereby releasing CO_2 in the process. The technical premise of this proposed technology is to produce biogenic $CaCO_3$ on the human timescale using coccolithophores, photosynthetic calcareous microalgae.

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19 Project A-RAM: Autonomous Runway & Airfield Augmentation

Sponsor: Wright Brothers Institute
Award: $900,000
PI: Wil V. Srubar III
Period: October 2020 – September 2023

Objective: The primary objective of this project is to engineer a photosynthetic, autotrophic biocementation process using unicellular cyanobacteria capable of microbial biocementation. The process-structure-properties of soil cemented via autotrophic biomineralization will be investigated using a combination of adaptive microbial evolution and materials characterization.

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18 CAREER: Biological Production of Carbonates for Sustainable Cementitious Materials

Sponsor: National Science Foundation (NSF)
Award: $500,000
PI: Wil V. Srubar III
Period: September 2020 – August 2025

Objective: The primary objectives of this project are (1) to use genetic engineering to exploit biological mechanisms of microbial-induced calcium carbonate precipitation to produce carbon-storing nano- and microscale minerals and (2) to study their effect on properties of cement paste and concrete. The research will be complemented by education and mentoring activities designed to educate the public on the benefits of low-carbon construction, while cultivating a new, inclusive, and diverse generation of interdisciplinary materials scientists and civil engineers.

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17 Geopolymer Cements: Resistance-Engineered Sewer Infrastructure for Longevity using Innovative, Energy-efficient, Synthesis Techniques (RESILIENT)

Sponsor: Advanced Research Projects Agency – Energy (ARPA-E)
Award: $1,200,533
PI: Wil V. Srubar III
Co-PI: Claire White (Princeton University)
Period: September 2019 – August 2021

Objective: The primary objective of this project is to engineer an ultra-acid-resistant low-calcium alkali-activated (i.e., geopolymer) cement paste specifically for wastewater (i.e., sewer) infrastructure applications to address the critical need for concrete materials with enhanced biogenic sulfuric acid resistance compared to ordinary portland cement (OPC) concrete.

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16 Creating Cement from Sunlight: Exploiting Biosynthetic Pathways in Photosynthetic Microalgae to Produce Cementitious Materials

Sponsor: University of Colorado Boulder, Research and Innovation Office
Innovative Seed Grant Program
Award: $50,000
PI: Wil V. Srubar III
Period: July 2019 – December 2020

Objective: The primary objective of this project is to catalyze a new, vibrant cross-campus collaboration to generate proof-of-concept data that substantiates the feasibility of using photosynthetic, unicellular microalgae (i.e., diatoms, coccolithophores) to create cement-like particles.

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15 Multifunctional Living Membranes for Indoor Environments

Sponsor: Multifunctional Materials Interdisciplinary Research Theme (IRT) Seed Grant Program University of Colorado Boulder
Award: $58,539
PI: Wil V. Srubar III
Co-PIs: Gregor Henze, Wangda Zuo, Erin Tripp (Evolutionary Biology)
Period: January 2019 – December 2019

Objective: The primary objective of this project is to obtain experimental data on the moisture-buffering capacities of synthetic lichen membranes and to build a computational framework to quantify the potential building energy savings of synthetic lichen with hyperactive moisture buffering capacities.

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14 Rebuilding Better Infrastructure for Resilient Communities

Sponsor: Department of Education
Graduate Assistance in Areas of National Need (GAANN)
Award: $1,119,972 Total Award
PI: Abbie Liel
Co-PIs: Kyri Baker, Sherri Cook, Amy Javernick-Will, Shideh Dashti, Joseph Kasprzyk
Affiliates: Ross Corotis, Wil V. Srubar III, Brad Wham, Cristina Torres-Machi
Period: June 2018 – May 2023

Objective: The primary objective of this project is to increase the number of graduate students and, eventually, researchers and teachers, who have the multidisciplinary skills to address the country's deteriorating infrastructure and the need for upgraded and new transport, water/sanitation, building, and power infrastructure.

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13 Living Building Materials for Regenerative Architecture

Sponsor: Multifunctional Materials Interdisciplinary Research Theme (IRT) Seed Grant Program University of Colorado Boulder
Award: $12,000
PI: Wil V. Srubar III
Co-PIs: Gregor Henze, Virginia Ferguson (Mechanical Engineering)
Period: January 2018 – December 2018

Objective: The primary objectives of this project is to acquire and analyze 3D images of lichen on natural substrates that will inform artificial substrate design out of conventional and novel material scaffolds, to acquire initial moisture buffering data of lichen, and to quantify potential energy savings of lichen applications in buildings.

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12 Biomimetic Antifreeze Polymers: A Novel, Biodegradable Deicing Salt Alternative

Sponsor: National Academy of Sciences (NAS), National Cooperative Highway Research Program (NCHRP)
Award: $184,056
PI: Wil V. Srubar III
Period: January 2018 – December 2019

Objective: The primary objective of this project is to design and synthesize biomimetic antifreeze polymers (BAPs) that explicitly mimic the activity, function, and structure of antifreeze proteins (AFPs) naturally found in plants, insects, and bacteria and assess their viability as a replacement to traditional surface-applied deicing salts in civil infrastructure applications.

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11 Experimental Study of Biomimetic Antifreeze Polymers for Enhanced Durability of Cementitious Binders

Sponsor: National Science Foundation (NSF)
Award: $407,750 ($391,750 + $16,000 REU Supplement)
PI: Wil V. Srubar III
Period: July 2017 – June 2021

Objective: The primary objective of this project is to design and synthesize biomimetic antifreeze polymers (BAPs) that explicitly mimic the activity, function, and structure of antifreeze proteins (AFPs) naturally found in plants, insects, and bacteria and assess their suitability as an admixture biotechnology for cement and concrete.

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10 Major Research Instrumentation: Acquisition of a 4D High-Resolution X-Ray Micro-Computed Tomography System for the Rocky Mountain Region

Sponsor: National Science Foundation (NSF)
Award: $1,145,012 Total Award ($801,508 + $343,504 Cost Share)
PI: Wil V. Srubar III
Co-PIs: Virginia Ferguson (Mechanical Engineering), Robert McLeod (Electrical, Computer, and Energy Engineering), Stephanie Bryant (Chemical and Biological Engineering), Mija Hubler
Period: August 2017 – July 2018

Objective: The primary objective of this project is to acquire a high-resolution X-ray microtomography (XRM) imaging system for the Rocky Mountain Region that will advance a broad spectrum of fundamental research, potentially leading to novel materials that enhance infrastructure resilience, medicine, and energy production.

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9 Programmable Resurrection of Materials Engineered to Heal Exponentially Using Switches (PROMETHEUS)

Sponsor: Defense Advanced Research Projects Agency (DARPA)
Award: $1,848,293
PI: Wil V. Srubar III
Co-PIs: Ryan Gill (Chemical and Biological Engineering), Sherri Cook, Mija Hubler
Period: April 2017 – March 2021

Objective: The primary objective of this work is to engineer a hybrid living material composed of an inert structural scaffold (i.e., sand) that supports the rapid growth and long-term viability of living cells (i.e., microorganisms) that endow the final material with both biological (i.e., self-repair) and structural (i.e., load-bearing) function.

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8 A State-of-the-Art Thermal Conductivity Analyzer: A Vital Addition to the Larson Building Systems Laboratory

Sponsor: Engineering Excellence Fund
Award: $31,000 Total Award ($15,500 + $15,500 Cost Share)
PI: Juan Pablo Gevaudan
Co-PIs: Emanuele Sortino (Mechanical Engineering), Kyle Foster (Materials Science and Engineering), Zoey Craun, Wil V. Srubar III
Period: April 2017 – May 2018

Objective: The primary objective of this project is to acquire state-of-the-art thermal conductivity analyzer (TCA) instrument to initiate new (and strengthen existing) collaborations between materials science and energy performance modeling and simulation by (1) studying thermal behavior of novel material systems and components, (2) investigating dynamic changes to thermal properties of materials and components through aging, and (3) utilizing thermal property data to advance building energy simulation.

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7 Design of Sustainable and Resilient Concrete Mixtures

Sponsor: National Science Foundation (NSF)
CMMI Design of Engineered Materials Systems Program
Award: $500,000
PI: Wil V. Srubar III
Co-PIs: Joseph Kasprzyk, Leah Sprain (Communications)
Period: August 2016 – July 2020

Objective: The primary objective of this work is to create, validate, and test a new paradigm for the design of concrete mixtures using many-objective evolutionary algorithms (MOEAs). The mathematical tools will aid in the design of concrete materials that are most economical, resilient, and environmentally sustainable for specific applications.

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6 Nanostructural Stability of Alkali-Activated (N,K-ASH) Geopolymer Cements

Sponsor: National Science Foundation (NSF)
CBET Environmental Sustainability Program
Award: $315,838 ($299,838 + $16,000 REU Supplement)
PI: Wil V. Srubar III
Period: August 2016 – July 2019

Objective: The primary objective of this research is to investigate the time-dependent stability of (N,K)-ASH geopolymer gel nanostructures in the presence of both physical and chemical environmental stressors. Fundamental knowledge on the nanostructural stability of (N,K)-ASH gels is necessary to produce sustainable, durable geopolymer-based alternatives to conventional portland cement.

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5 Engineering Community Resilience

Sponsor: Department of Education
Graduate Assistance in Areas of National Need (GAANN)
Award: $1,189,398 Total Award
PI: Ross Corotis
Co-PIs: Angela Bielefeldt, Amy Javernick-Will, Abbie Liel, Shideh Dashti
Affiliates: Wil V. Srubar III, Joseph Kasprzyk, Keith Porter
Period: June 2016 – May 2021

Objective: The primary objective of this project is to provide educational assistance and training to a cohort of civil engineering graduate students in the area of community resilience. The project aims to increase the number of students who have multidisciplinary skills to address the country's need for designing, constructing, and maintaining communities of increased resilience with enhanced livability and desirability for all.

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4 Characterization and Valorization of Recycled Polycarbonate, Phase II

Sponsor: ReVision Solutions, LLC
Award: $67,000
PI: Wil V. Srubar III
Co-PI: Wei Zhang (Chemistry and Biochemistry)
Period: June 2016 – August 2016

Objective: The primary objective of this work is to assess the feasibility of valorizing recycled polycarbonate by (a) analyzing the processability of 3D printable filaments, films, foams, and insulation materials from polycarbonate waste streams and (b) exploring the derivatization of recycled polycarbonates and investigating the resulting hybrid materials' properties.

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3 Characterization and Valorization of Recycled Polycarbonate, Phase I

Sponsor: ReVision Solutions, LLC
Award: $73,060
PI: Wil V. Srubar III
Co-PI: Wei Zhang (Chemistry and Biochemistry)
Period: October 2015 – March 2016

Objective: The primary objective of this work is to assess the feasibility of valorizing recycled polycarbonate by (a) characterizing the physical, chemical, and mechanical properties of waste stream samples and (b) investigating methods to remove contaminants that may prohibit the utilization of certain polycarbonate waste streams.

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2 Mechanics-based Service-Life Prediction of Natural-Fiber Composites

Sponsor: National Science Foundation (NSF)
CMMI Mechanics of Materials Program
Award: $336,737 ($274,990 + $16,000 REU Supplement + $43,747 INTERN Supplement)
PI: Wil V. Srubar III
Period: September 2015 – February 2020

Objective: The primary objective of this research is to use micromechanics to predict moisture- and frost-induced damage in both short- and continuous-fiber natural-fiber composites exposed to fluctuating hygrothermal conditions.

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1 Sustainable Synthesis of Gelatin Foams

Sponsor: University of Colorado Boulder, Research and Innovation Office
Innovative Seed Grant Program
Award: $49,985
PI: Wil V. Srubar III
Period: July 2015 – December 2016

Objective: The primary objective of this fundamental research is to understand the process-structure-property relationships of biobased aerogels (bioaerogels) produced from natural polypeptides and polysaccharides using a novel, energy-efficient, heat-assisted processing technique.

VII. Awards, Honors, and Distinctions

National and International

Schmidt Science Polymaths Award	2023
Pritzker Emerging Environmental Genius Award Nominee	2023
American Ceramics Society (ACerS) Cements Division Early Career Award	2023
Engineering News Record Top 25 Newsmakers 2022	2023
Best Poster Award, 11th Annual American Ceramics Society (ACerS) Cements Division Meeting	2021
BioEnvironmental Polymer Society, Outstanding Young Scientist	2021
National Science Foundation CAREER Award, Engineering for Civil Infrastructure Program	2020
Frontiers in Materials: Rising Stars 2020	2020
Best Paper Award, Journal of the American Ceramics Society	2020
Best Presentation Award, 3rd International Conference on Bio-based Materials	2019
Best Poster Award, 10th Annual American Ceramics Society (ACerS) Cements Division Meeting	2019
Best Poster Award, 2019 ASCE Architectural Engineering Institute (AEI) National Conference	2019
National Academy of Engineering, New Voices in STEM	2018
Best Poster Award, 9th Annual American Ceramics Society (ACerS) Cements Division Meeting	2018
Best Presentation, ECI Alkali-Activated Materials and Geopolymers Conference	2018
National Academy of Engineering, Frontiers of Engineering Symposium Alumnus	2017
Top 20 Under 40, Engineering News Record (ENR) Mountain States	2017
Excellence in Civil Engineering Education (ExCEEd) Fellowship, ASCE	2016
Best Presentation, NSF/NIST Durability of Polymers and Composites Workshop	2013
Graduate Scholar Award, International Conference on Sustainability	2012
Best Paper Award, American Composites Manufacturer's Association Conference	2011
National Science Foundation Graduate Research Fellowship	2007
4th Place, National Beam Design Competition, Prestressed Concrete Institute	2006
Skidmore, Owings, and Merrill, Traveling Fellowship in Structural Engineering	2006

Regional and Local

Best Poster Award, Symposium for Sustainable Infrastructure	2017
Best Paper Award, American Society of Civil Engineers (ASCE), San Jose Branch	2013
Best Paper Award, American Society of Civil Engineers (ASCE), San Jose Branch	2012
$250,000 National Research Ideas Team Competition, Austin Energy	2007

Department, College, and University

Charles Victor Schelke Endowed Professorship	2023
Provost Faculty Achievement Award	2020
Shay Family Endowed Fellowship	2019
Research and Innovation Office (RIO) Faculty Fellowship, University of Colorado Boulder	2018

Dean's Faculty Fellowship, University of Colorado Boulder	2018
Teaching Award, CEAE Department, University of Colorado Boulder	2018
Young Researcher Award, CEAE Department, University of Colorado Boulder	2016
Faculty Appreciation Award, CEAE Department, University of Colorado Boulder	2016
Gerald J. Lieberman Fellowship, Stanford University (1 of 13 university-wide)	2012
Most Outstanding Senior Engineer, College of Engineering, Texas A&M University	2006
Most Outstanding Senior Engineer, Department of Civil Engineering, Texas A&M University	2006
Interdisciplinary Research Recognition Award, Texas A&M University	2006
Undergraduate Research Fellowship, Texas A&M University	2005
President George H.W. Bush Foreign Travel Grant, Texas A&M University	2004
Buck Weirus Spirit Award, Texas A&M University (1 of 10 University Awards)	2003
Class of 2003 University Scholar, Texas A&M University (1 of 12 University Awards)	2003

VIII. Professional Affiliations & Licensure

Professional Affiliations

American Ceramics Society (ACerS) Cements Division
American Concrete Institute (ACI)
American Society of Civil Engineers (ASCE)
ASCE Architectural Engineering Institute (AEI)
ASCE Structural Engineering Institute (SEI)
American Society of Engineering Education (ASEE)
Carbon Leadership Forum (CLF)
Embodied Carbon Network (ECN)
Tau Beta Pi, Engineering Honor Society
Chi Epsilon, Civil Engineering Honor Society

Professional Licensures

United States Green Building Council (USGBC), LEED® Accredited Professional
Engineer-in-Training (EIT), State of Texas, License #37176

IX. National and International Service

Service in Professional Organizations

10	Chair	American Ceramics Society (ACerS) Cements Division	2023 – present
9	Chair-Elect	American Ceramics Society (ACerS) Cements Division	2022 – 2023
8	Secretary	American Ceramics Society (ACerS) Cements Division	2020 – 2022
7	Conference Chair	2021 Architectural Engineering Institute (AEI) Conference	2019 – 2021
6	Conference Co-Chair	2021 ACerS Cements Annual Meeting	2021
5	Board of Governors	Architectural Engineering Institute (AEI)	2020 – present
4	Director of Global Hubs	Carbon Leadership Forum (CLF)	2019 – 2021
3	Academic Council Member	Architectural Engineering Institute (AEI) University of Colorado Representative	2015 – 2020
2	Co-Chair	Embodied Carbon Network (ECN)	2016 – 2021
1	Committee Member	American Concrete Institute (ACI) Committee 236: Material Science of Concrete Committee 242: Alternative Cements	2016 – present

Session Chairperson at National and International Conferences

10	American Ceramic Society (ACerS) Cements Division Conference Bio-inspired Cementitious Materials	2022
9	American Ceramic Society (ACerS) Cements Division Conference Durability and Service-Life Modeling	2021
8	15th Durability of Building Materials and Components (DBMC) Conference (Barcelona, Spain) Biomimetic and Bioinspired Approaches for Enhanced Durability of Cementitious Materials	2020
7	American Concrete Institute (ACI) Convention Recent Developments in Bio-Inspired Cementitious Materials	2019
6	VERGE 19: Carbon Buildings that Draw Down Carbon	2019
5	15th International Congress on the Chemistry of Cement (Prague, Czech Republic) Other Binders and their Application	2019
4	Carbon-Smart Building Day Best Practices & Tools For Quantifying the Carbon Footprint of Every Project	2018
3	American Society of Civil Engineers (ASCE) Structures Congress Conversations About Carbon: The Embodied Carbon Network and SE 2050 Innovations in Sustainable and Resilient Structural Materials Advances in Sustainable Structural Materials	 2018 2017 2015
2	American Society of Engineering Education (ASEE) Conference Multidisciplinary Engineering Education	2015
1	International Conference on Biobased Building Materials (Cleremont-Ferrand, France) Cementitious Composites Advanced Bacterial Composites and Foams	 2017 2015

Editorships & Peer Reviews for Technical Journals

4	American Chemical Society (ACS) Sustainable Chemistry & Engineering Associate Editor	2023-present
3	ASCE Journal of Architectural Engineering Associate Editor	2022-2023
2	ASCE Journal of Materials in Civil Engineering Associate Editor	2022-2023
1	Journal of Renewable Materials Co-Editor of Special Issue on Biobased Construction Materials	2015

External Peer Reviewer: Nature Materials, Matter, ACS Sustainable Engineering & Chemistry, Energy and Buildings, Cement and Concrete Research, Construction and Building Materials, Journal of Architectural Engineering, Cement and Concrete Composites, Corrosion Science, Journal of Materials in Civil Engineering, Materials, Journal of Renewable Materials, Composites Part A: Applied Science and Manufacturing, Composites Part B: Engineering, Journal of Cleaner Production, American Society of Engineering Education Conference, International Journal of Concrete Structures and Materials, Sustainability.

X. University, College, and Department Service Activities

University- and College-Level Service Activities

9	Materials Science Program Graduate Admissions Committee Committee Member	Fall 2023 – present
9	Materials Science Program Executive Committee Committee Member	Fall 2020 – Spring 2023
8	Materials Science Program Graduate Committee Committee Member	Fall 2019 – Spring 2020
7	Soft Materials Faculty Search Committee	2017 – 2018

	Committee Member	
6	oSTEM @ CU Boulder / Student Alliance of GLBT Engineers (SAGE) Student Chapter Advisor	Fall 2016 – Spring 2019
5	Research & Innovation Seed Grant (RISG) Program Proposal Reviewer	2016, 2017
4	Research & Innovation Office: Workshop for NSF MRI Program Workshop Panelist	2017
3	PHYS 1140 Transformation Committee Committee Member	Summer 2016
2	Dissertation Awards Committee Ad Hoc Committee Member	Summer 2015
1	Introduction to Engineering: Course Video Architectural Engineering Faculty Representative	Summer 2015

Department-Level Service Activities

7	Associate Chair of Undergraduate Education Department of Civil, Environmental, and Architectural Engineering	Fall 2020 – present
6	Department of Civil, Environmental, and Architectural Engineering ABET Coordinator	Fall 2020 – present
5	Architectural Engineering Program ABET Coordinator	Spring 2019 – present
4	Architectural Engineering Program Faculty Director	Spring 2017 – May 2022
3	Departmental Facilities Committee Architectural Engineering Representative	Fall 2017 – Spring 2018
2	Architectural Engineering Institute (AEI) Student Chapter Advisor	Fall 2016 – Fall 2021
1	Departmental Graduate Committee Architectural Engineering Representative	Spring 2014 – Spring 2017

XI. Postdoctoral Scholars, Graduate Students, and Undergraduate Students

Current Postdoctoral Scholars or Research Associates

1. Dr. Cansu Acarturk
2. Dr. Samuel Armistead
3. Dr. Nilanjana Mazumdar
4. Dr. Caitlin Adams
5. Dr. Lamiya Noor
6. Dr. Giulia Brachi

Current Graduate Students

1. Joy Edwin-Ezeh (MSE PhD Candidate)
2. Olivia Wilburn (MCEN PhD Candidate)
3. Rebecca Mikofsky (MSE PhD Candidate)
4. Nicolas Dowdy (MSE PhD Candidate)
5. Austin Dada (CVEN PhD Candidate)
6. Martin Torres (AREN PhD Candidate)
7. Matthew Jungclaus (AREN PhD Candidate)

8 Danielle Beatty (MSE PhD Candidate)

Current Undergraduate Student Researchers

1 Brooklyn Lash (BS Candidate)
Fall 2023-present Discovery Learning Apprentice

2 Eleanor Taylor (BS Candidate)
Fall 2023-present

Former Postdoctoral Scholars

1 Dr. Jie Ren
Current Position: Postdoctoral Research Associate, University of Colorado Boulder

2 Dr. Sarah Williams
Current Position: Chief Executive Officer, Minus Materials, Inc.

2 Dr. Shane Frazier
Current Position: Senior Engineer, Newell Brands

3 Dr. Xu Chen
Current Position: Associate Professor, Huazhong University of Science and Technology

4 Dr. Kristen Hess
Current Position: Associate, Exponent, Inc.

5 Dr. Elizabeth Delesky
Current Position: Research Scientist, Tynt Technologies

6 Dr. Chelsea Heveran
Current Position: Assistant Professor, Mechanical & Industrial Engineering, Montana State University

7 Dr. Jaqueline Wallat
Current Position: Process Analytical Scientist, BASF

Former PhD Students

1 Dr. Melissa Frey (CVEN PhD 2023) (Co-Advised with Prof. Cristina Torres-Machi)
Current Position: Exponent, Inc.

2 Dr. Sarah Williams (MSE PhD 2022)
Current Position: Chief Executive Officer, Minus Materials, Inc.

3 Dr. Jay Arehart (AREN PhD 2021)
Current Position: Instructor, University of Colorado Boulder

4 Dr. Mohammad Matar (CVEN PhD 2021)
Current Position: Engineer, United States Bureau of Reclamation

5 Dr. Kyle Foster (MSE PhD 2021)
Current Position: Postdoctoral Research Associate, National Renewable Energy Laboratory

6 Dr. Anastasia Aday (MSE PhD 2021)
Current Position: Postdoctoral Research Associate, National Renewable Energy Laboratory

7 Dr. Shane Frazier (MSE PhD 2021)
Current Position: Senior Engineer, Newell Brands

8 Dr. Elizabeth Delesky (MSE PhD 2020)
Current Position: Research Scientist, Tynt Technologies

9 Dr. Kristen Hess (CVEN PhD 2020)
Current Position: Associate, Exponent, Inc.

10 Dr. Juan Pablo Gevaudan (AREN PhD 2019)

Current Position: Assistant Professor, The Pennsylvania State University

Former MS Students

20 Rollin Jones (CVEN MS 2022)

19 Maja Sagaser (AREN MS 2021)

18 Brenton Kreiger (AREN MS 2020)

17 Nathan Deanda (CVEN MS 2020)

16 Jorge Osio-Norgaard (CVEN MS 2019)

15 Kaia Noonan (CVEN MS 2019)

14 Ryan White (AREN MS 2019)

13 Elvin Viloria (AREN MS 2019)

12 Sheela Vedula (AREN MS 2019)

11 Zoey Craun (AREN MS 2018)

10 Elizabeth Coleman (AREN MS 2018)

9 Morgan Talmage (AREN MS 2017)

8 Adriana Souto-Martinez (AREN MS 2017)

7 Nathan Stambaugh (AREN MS 2017)

6 Sarah Hong (AREN MS 2017)

5 Carson Brown (AREN MS 2016)

4 Matthew Rankins (AREN MS 2016)

3 Sean Hinchcliffe (CVEN MS 2015)

2 Todd Bergman (CVEN MS 2015)

1 Patrick Barnhouse (CVEN MS 2015)

Former Undergraduate Students

17 Madalyn Murphy (BS Candidate)
2021-22 Discovery Learning Apprentice

16 Isabel Russel (BS Candidate)
2021-22 Discovery Learning Apprentice

15 Nicholas Grant (CVEN Spring 2022)
2021-22 Discovery Learning Apprentice

14 Reilly Fagan (CHBE Spring 2021)
2020-21 Research Experience for Undergraduates

13 Aparna Lobo (CHBE Spring 2021)
2018-19 Discovery Learning Apprentice
2020-21 Research Experience for Undergraduates

12 Thomas Costello (BS Candidate)
2019 Research Experience for Undergraduates

11 Rollin Jones (BS Candidate)
2018-19 Discovery Learning Apprentice
2019 Undergraduate Research Opportunities Program

10 Michael Heine (BS Candidate)
2018-19 Discovery Learning Apprentice

9 William Nelson (BS Candidate)
2018-19 Discovery Learning Apprentice

8 Matthew Bedeaux (BS Candidate)

2018-19 NSF Research Experience for Undergraduates

7 Briana Santa Ana (BS Candidate)
2018-19 NSF Research Experience for Undergraduates

6 Kaia Noonan (CVEN BS Spring 2019)
2018-19 NSF Research Experience for Undergraduates
2017-18 Discovery Learning Apprentice
2016-17 Undergraduate Research Opportunities Program

5 Ethan Ellingboe (CHBE BS Spring 2018)
2017-18 Discovery Learning Apprentice

4 Jonathan Stuckenschneider (ENVD BA Spring 2017)
2016-17 Undergraduate Research Opportunities Program

3 Alec Gordon (CVEN BS Spring 2017)
2015-16 Discovery Learning Apprentice

2 Torin McCue (CVEN BS Spring 2016)
2015-16 Undergraduate Research Opportunities Program

1 Danielle Dorr (CVEN BS Spring 2016)
2015 Undergraduate Research Opportunities Program

XII. Teaching Experience

Courses taught at the University of Colorado Boulder, Stanford University, and The University of Texas at Austin are accompanied by an overall instructor or teaching assistant rating, denoted in bold. Dual course numbers signify undergraduate and graduate cross-listed courses.

University of Colorado Boulder

6 AREN 1316, Introduction to Architectural Engineering

Course Overview: Introduction to Architectural Engineering introduces freshman-level undergraduate students to structural, mechanical, electrical, illumination, and construction engineering and management, highlighting the broad application of skills acquired by an architectural engineer and dispelling the myth that the architectural engineering profession is narrow and limited. Through a combination of seminars, guest lectures, field trips, assignments, and independent learning, students build a solid foundation for successful completion of a world-class architectural engineering education at the University of Colorado.

Fall 2017 Instructor Rating: 5.0/6.0

5 CVEN 4565, Design of Wood Structures

Course Overview: Design of Wood Structures introduces upper-level undergraduate and graduate students to the design and analysis of code-compliant wood structures, namely beams, columns, beam-columns, diaphragms, shear walls, and connections. After a brief review of structural analysis, course topics focus on light-framed low-rise wood building elements constructed of sawn lumber or engineered wood. Advanced design concepts related to tall wood buildings using cross-laminated timber (CLT) are also introduced through course projects.

Spring 2023 Average Rating: 4.4/5.0
Spring 2021 Average Rating: 4.5/5.0
Spring 2019 Instructor Rating: 5.2/6.0
Spring 2017 Instructor Rating: 5.6/6.0

4 CVEN 5830/AREN 4830, Forensic Engineering

Course Overview: Forensic Engineering introduces upper-level undergraduate and graduate students to systematic failure analysis, advanced materials chemistry, and long-term durability concerns of building materials, components, and structures. The physical, chemical, mechanical, and biological degradation mechanisms in the most common construction materials, namely concrete, masonry, metals, wood, polymers, and fiber-reinforced composites, are elucidated. Other topics include design for durability, mass transport,

electrochemical corrosion kinetics, linear elastic fracture mechanics, laminate mechanics, and diagnostic, retrofit, and rehabilitation strategies for extended service life.

Spring 2020 Overall Rating: 4.5/5.0
Fall 2017 Instructor Rating: 5.8/6.0
Fall 2016 Instructor Rating: 5.9/6.0
Fall 2015 Instructor Rating: 5.7/6.0
Fall 2014 Instructor Rating: 5.9/6.0

3 CVEN 5830/AREN 4830, Sustainable Materials and Structures

Course Overview: Sustainable Materials and Structures introduces upper-level undergraduate and graduate students to sustainable design strategies for low-carbon building. After a review of construction materials science, this course introduces students to the fundamentals of lifecycle assessment for materials and structural systems. Hands-on course projects teach students state-of-the-art sustainability strategies, such as methods of reducing material waste (e.g., structural optimization, 3D printing) and engineering alternative low-impact building materials from a materials science perspective.

Fall 2016 Instructor Rating: 5.9/6.0

2 CVEN 3161, Mechanics of Materials I

Course Overview: Mechanics of Materials I introduces undergraduate students to the fundamental concepts of stress, strain, and deformation in engineering materials. In this combined lecture and laboratory course, the mechanics and behavior of engineering materials, namely columns, rods, and beams subject to tension, compression, shear, torsion, bending, and buckling are explored. Other course topics include a review of static equilibrium, material failure criteria, stress transformation, and an introduction to structural design and analysis.

Spring 2021 Average Rating: 4.1/5.0
Spring 2018 Instructor Rating: 5.8/6.0
Spring 2016 Instructor Rating: 5.8/6.0
Spring 2015 Instructor Rating: 5.9/6.0
Spring 2014 Instructor Rating: 5.9/6.0

1 CVEN 5830, Integrated Design Seminar

Course Overview: Integrated Design Seminar introduces upper-level environmental design undergraduate students and architectural engineering graduate students to the fundamentals of integrated building design. This project-based course exposes both undergraduate and graduate students to the practical interrelationships of architecture and its related disciplines, including engineering and visual arts.

Spring 2016 Instructor Rating: 5.6/6.0

Stanford University

2 CEE 200, Teaching of Civil & Environmental Engineering

Course Overview: Teaching of Civil & Environmental Engineering introduces graduate students to strategies for effective teaching and engineering pedagogy. Topics include problem solving techniques and learning styles, individual and group instruction, the role of teaching assistants, balancing other demands, and grading.

Fall 2011 Instructor Rating: 4.9/5.0

1 CEE 80N, The Art of Structural Engineering

Course Overview: The Art of Structural Engineering introduces freshman-level undergraduates to the history of modern bridges, buildings, and other large-scale structures. Basic principles of structural engineering and how to calculate material efficiency and structural safety of structural forms are taught using case studies. The goal of this course is for students to develop an understanding and appreciation of modern structures, influences that have led to new forms, and the impact of structural design on society and the environment.

Fall 2010 Teaching Assistant (TA) Rating: 4.7/5.0

The University of Texas at Austin

1 CE 314K, Properties & Behavior of Engineering Materials Laboratory

Course Overview: Properties & Behavior of Engineering Materials Laboratory introduces sophomore-level undergraduate students to the process-structure-property relationships of engineering materials, including metals, portland cement concrete, asphalt, wood, polymers and composites. Laboratory exercises illustrate mechanical behavior of typical materials and demonstrate principles of engineering mechanics.

Spring 2008 Teaching Assistant (TA) Rating: 4.8/5.0
Fall 2007 Teaching Assistant (TA) Rating: 4.8/5.0

Other Teaching

4 Stanford Pre-Collegiate Studies Program, Stanford University — Summer 2016, 2017, 2018
Introduction to Earthquake Engineering (3 Week Course)

Course Overview: Introduction to Earthquake Engineering introduces high-school juniors and seniors to engineering design principles of structural engineering. This course includes field trips to a few Bay Area landmarks, lecture presentations, movie documentaries, computer modeling, and hands-on learning by building and testing model buildings exposed to cyclic earthquake loads.

3 Stanford Pre-Collegiate Studies Program, Stanford University — Summer 2014
Materials, Structures, and the Environment (4 Week Course)

Course Overview: Materials, Structures, and the Environment introduces high-school juniors and seniors to modern structures, the social context in which they are built, and their symbolic value. Engineering design principles of structural engineering and calculations of efficiency and safety are taught through the use of structural case studies.

2 Educational Program for Gifted Youth, Stanford University — Summer 2013
Introduction to Structural Engineering (4 Week Course)

Course Overview: Introduction to Structural Engineering introduces students to the art and science of engineered structures. Using principles of math and physics, students design and analyze historic towers, buildings, and bridges, including the Eiffel Tower and the Golden Gate Bridge. This course includes field trips to a few Bay Area landmarks, lecture presentations, a guest panel of structural engineers, a movie documentary, computer modeling, and hands-on learning by building and testing a model bridge.

1 Mentors in Teaching (MinT) Program, Stanford University — Fall 2011