PARAMITA MONDAL

Department of Civil & Environmental Engineering
University of Delaware
360A DuPont Hall
Newark, DE 19716

A. Professional Preparation:

Ph.D. in Civil and Environmental Engineering, Northwestern University, 2008

M.S. in Civil Engineering, University of Connecticut, 2004

B.E. in Civil Engineering, Jadavpur University, India, 2001

B. Appointments:

Associate Professor, Department of Civil & Environmental Engineering, University of Delaware, February 2017

Adjunct Associate Professor, Department of Civil & Environmental Engineering, University of Illinois at Urbana-Champaign, January 2017

Associate Professor, Department of Civil & Environmental Engineering, University of Illinois at Urbana-Champaign, August 2016 – December 2016

Assistant Professor, Department of Civil & Environmental Engineering, University of Illinois at Urbana-Champaign, February 2009 – July 2016

Graduate Research Assistant, Northwestern University, September 2004 – December 2008

Graduate Research Assistant, University of Connecticut, August 2002 – June 2004

Assistant Structural Engineer, M. N. Dastur & Co (P) Ltd, India, August 2001 – June 2002

C. Professional Activities:

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- Session Moderator, Gordon Research Conference, Advanced Materials for Sustainable Infrastructure Development, Hong Kong, July 31 – August 5, 2016
- Member of local organizing committee, 5th International Symposium on Nanotechnology in Construction, Chicago, 2015
- Program Chair of the American Ceramics Society Cement Division Annual Conference, 2013, Champaign, IL
- Session Chair, Bio Inspired Material for Construction, ACI Convention, Fall 2013, Phoenix, AZ
- Program Co-Chair: American Ceramics Society Cement Division Annual Conference, Purdue University, July, 2010
- Chair of the American Ceramics Society Cement Division, 2011-2012
- Associate Editor of the American Society of Civil Engineers Journal of Materials in Civil Engineering, 2009-2011
- Voting member of committee 236 Materials Science, American Concrete Institute

- Actively contributed towards the preparation of a state-of-the-art report on Nanotechnology in Construction as part of the ACI 236D sub-committee effort
- Contributed towards preparation of a report on Sustainable Concrete as part of the ACI 236 Sustainability Task Force
- Member of committee AFN 15T Nanotechnology-Based Concrete Materials, Transportation Research Board
- Member of scientific committee, 4th International Symposium on Nanotechnology in Construction, Greece, 2012

D. Awards:

1. Best Poster Award, 7th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Evanston, IL, July 10-13, 2016 (with student Ardavan Ardeshirilajimi)
2. Best Poster Award, 5th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Cookeville, TN, July 9-11, 2014 (with student Will Hunnicutt)
3. Best Poster Award, 5th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Cookeville, TN, July 9-11, 2014 (with student Pete Stynoski)
4. Best Poster Award, 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013 (with student S. Lim, J. Somaratna and Prof. J. Popovics)
5. Best Poster Award, 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013 (with student P. Stynoski)
6. Best Poster Award, 1st Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, West Lafayette, IN, July 2010 (with student S. Puligilla)
7. Member of NSF sponsored US Delegates for Workshop on Sustainable Buildings in Cairo, Egypt, 2010
8. Member of NSF sponsored US Delegates for 3rd International Symposium on Nanotechnology in Construction in Prague, Czech Republic, 2009
9. Terminal Year Fellowship Award, Northwestern University, 2007
10. First place in Advanced Cement-based Materials Semiannual Meeting Poster Competition, Spring 2007
11. Walter P. Murphy Fellowship, Northwestern University, 2007
12. Travel Grant for attending NSF Workshop on Nanomodification of Cementitious Materials: Portland Cement Concrete and Asphalt Concrete; Gainesville, Florida, 2006
13. First place in Advanced Cement-based Materials Semiannual Meeting Poster Competition, Fall 2006

14. Second place in Advanced Cement-based Materials Semiannual Meeting Poster Competition, Spring 2006
15. Harvey Hagge Concrete Scholarship, Illinois Ready Mix Concrete Association, 2006
16. Member of NSF sponsored US Delegates for 2nd International Symposium on Nanotechnology in Construction in Bilbao, Spain, 2005
17. Walter P. Murphy Fellowship, Northwestern University, 2004
18. Narsimha Rao Addidum Award for Academic Achievement, University of Connecticut, 2004
19. Alumni Award for Academic Achievement, Jadavpur University, India, 2004

F. Funded Research Projects:

1. Optimized Performance of UHPC Bridge Joints and Overlays, Center for Integrated Asset Management for Multi-modal Transportation Infrastructure Systems (CIAMTIS): Region 3 University Transportation Center, Penn. State University, $ 116,668, Mar 19- Aug 20
2. Use of Bacterial DNA for Early Identification of ASR Damage, Delaware Department of Transportation, $ 99,479, Aug 18- Aug 20
3. Bonding of Overlays to Ultra-High Performance Concrete, Delaware Department of Transportation, $ 98,743, Sep 19- Aug 21
4. Bridge Decks: Mitigation of Cracking and Increased Durability-Phase 3, Illinois Department of Transportation, $105,180, 2017-2020
5. Center for Neutron Science at the University of Delaware: Solving Grand Challenge Problems with Neutron Scattering, $57,806, 2017-2019
6. Altering Reaction Kinetics and Nanostructural Development of Alkali-Activated Binders for Improved Volume Stability, National Science Foundation, $300k, 2015-2018
7. Improving damping and dynamic resistance in concrete through micro- and nano-engineering for sustainable and environmental-friendly applications in railway and other civil construction, The Birmingham–Illinois Partnership for Discovery, Engagement, and Education (BRIDGE), $8000, 2015
8. The Effect of Alumina Substitution on Viscoelasticity of Calcium Silicate Hydrate, National Science Foundation, $300k, 2013-2016
9. Bridge Decks: Mitigation of Cracking and Increased Durability-Phase 2, Illinois Department of Transportation, $340k, 2013-2016,
10. Biodeposition of Calcite for Self-Healing Concrete, US Army Corps of Engineers, $865k, 2013-2016
11. Dispersion of Graphene Nanoplatelets in Polar Fluids, US Army Corps of Engineers, $95k, 2012-2014
12. ADM: Appropriate Technology Development and System Integration for Post-Harvest Loss Prevention in the Entire Crop Supply Chain – Materials engineering for durable and sustainable storage structures, ADM Institute, $70k, 2012-2014
13. A New Approach for Multi-scale Material Modeling Using Nanoindenter Data, University of Illinois, $27k, 2012-2013

14. Bridge Decks: Mitigation of Cracking and Increased Durability, Illinois Department of Transportation, $335k, 2010-2013
15. EAGER- Exploratory Study on Biomineralization in Cementitious Materials for Self-healing of Cracks, National Science Foundation, $30k, 2010-2011
16. Development of Suitable Method to Incorporate Carbon Nanotubes in Cementitious Composites, US Army Corps of Engineers, $120k, 2009-2015

G. Journal Publications:

1. E. Rodriguez, W. Hunnicutt, P. Mondal and Y. Le Pape, "Examination of gamma-irradiated calcium silicate hydrates. Part I: Chemical-structural properties" Journal of the American Ceramic Society, 2020, 103 (1), 558-568
2. A. Ardeshirilajimi and P. Mondal, "Effects of Presoaked Lightweight Aggregate Addition on Drying Shrinkage" Journal of Materials in Civil Engineering, 2019, 31 (10), 04019211
3. S. Puligilla, X. Chen and P. Mondal, "Does synthesized CSH seed promote nucleation in alkali activated fly ash-slag geopolymer binder?" Materials and Structures, 2019, 52 (4), 65
4. S. Puligilla, X. Chen and P. Mondal, "Understanding the role of silicate concentration on the early-age reaction kinetics of a calcium containing geopolymeric binder" Construction and Building Materials, 2018, 191, 206-215
5. P. Chaunsali, A. Ardeshirilajimi and P. Mondal, "On the interaction of Class C fly ash with Portland cement–calcium sulfoaluminate cement binder" Materials and Structures, 2018, 51 (5), 131
6. E. Rodriguez, W. Hunnicutt, P. Mondal and Y. Le Pape, "Assessing the Effects of Gamma Irradiation in Concrete" Transactions, 2018, 118 (1), 1649-1650
7. A. Ardeshirilajimi, D. Wu, P. Chaunsali and P. Mondal, "Effects of Pre-Saturated Light-Weight Aggregate on Deformation Properties of OPC-CSA Cement Blends," ACI Materials Journal, 114 (4) (2017): 643-652
8. W. Hunnicutt, L. Struble and P. Mondal, "Effect of Synthesis Procedure on Carbonation of Calcium-Silicate-Hydrate," *Journal of American Ceramics Society*, 100 (8) (2017): 3736-3745
9. S Kaewunruen, R Meesit and P Mondal, "Early-age dynamic moduli of crumbed rubber concrete for compliant railway structures," *Journal of Sustainable Cement-Based Materials*, 6 (5) (2017): 281-292
10. W. Hunnicutt, P, Mondal and L. Struble, "Dynamic and Quasi-Static Nanoindentation of CSH and CASH," *American Concrete Institute Special Publication*, 312 (2016): 1-15
11. P. Chaunsali and P. Mondal, "Hydration and Early-Age Expansion of Calcium Sulfoaluminate Cement-Based Binders: Experiments and Thermodynamic Modeling," *Journal of Sustainable Cement-Based Materials*, 5 (4) (2016): 259-267
12. P. Chaunsali and P. Mondal, "Physico-chemical interaction between mineral admixtures and OPC–calcium sulfoaluminate (CSA) cements and its influence on early-age expansion," *Cement and Concrete Research*, 80 (2016): 10-20
13. B. Zhang, Zeynep Basaran, P. Mondal, R. Douglas Ferron, "Use of Biomineralization in Developing Smart Concrete Inspired by Nature," *International Journal of Materials and Structural Integrity*, 9 (1-3) (2015): 39-60

14. P. Chaunsali, P. Mondal, "Effect of Calcium Sulfoaluminate (CSA) Dosage on Early-age Expansion," *Journal of American Ceramics Society*, 98 (8) (2015): 2617-2624
15. S. Lim, P. Mondal, "Effect of Nano and Micro Silica on Carbonation of Cement Paste," *Journal of Materials Science,* 50 (10) (2015), 3531-3540
16. P. Stynoski P, P. Mondal, C. Marsh, "Effects of Silica-mediated Interface Strengthening on Fracture Properties of Carbon Nanotube and Carbon Fiber Reinforced Portland Cement Mortar," *Cement and Concrete Composite* Volume 55 (2015): 232–240
17. S. Lim, P. Mondal, "Understanding the Effects of Nanosilica Addition on Increased Thermal Stability of Cement-based Composite," *ACI Materials Journal* Vol. 112, 1-6 (January 2015):
18. S. Puligilla, P. Mondal, "Co-existence of geopolymer and calcium silicate gel characterized through selective dissolution techniques and FTIR spectral subtraction," *Cement and Concrete Research* Volume 70 (2015): 39–49
19. S. Lim, P. Mondal, "Micro and Nano-scale Characterization to Study Thermal Degradation of Cement-based Materials," *Materials Characterization* Volume 92 (2014): 15–25
20. P. Chaunsali, P. Mondal, "Influence of Mineral Admixtures on Early-Age Deformation and Hydration of Calcium Sulfoaluminate Cement," *ACI Materials Journal* Vol. 111, 1-6 (2014)
21. P. Suraneni, S. Puligila, E. H. Kim, X. Chen, L. J. Struble and P. Mondal, "Monitoring Setting of Geopolymers," *Advances in Civil Engineering Materials* Volume 3, no. 1, DOI: 10.1520/ACEM20130100, (2014)
22. Y. He, L. lu, L. J Struble, J. L. Rapp, P. Mondal, "Effect of C/S Ratio on Microstructure and Nanostructure of Calcium Silicate Hydrate Synthesized by Reaction of Fumed Silica and Calcium Oxide at Room Temperature," *Materials and Structures* Volume 47, no. 1-2, (2014): 311 – 322,
23. S. Puligilla, P. Mondal, "Role of Slag in Microstructural Development and Hardening of Fly Ash-Slag Geopolymer, "*Cement and Concrete Research* Volume 43 (2013): 70-80
24. S. Puligilla, P. Mondal, "Microstructural Changes Responsible for Hardening of Fly Ash-Slag Geopolymers Studied Through Infrared Spectroscopy," *STP 1566 ASTM Symposium on Geopolymer Binders* (2013): 21-33
25. P. Stynoski, P. Mondal, E. Wotring, C. Marsh; Characterization of Silica-Functionalized Carbon Nanotubes Dispersed in Water," *Journal of Nanoparticle Research* 15 no.1(2013): 1396
26. J. J. Gaitero, I. Campillo, P. Mondal, S. P. Shah, "Small Changes Can Make a Great Difference," *Journal of the Transportation Research Board* (May 2010)
27. P. Mondal, S. P. Shah and L. D. Marks, "A Comparative Study on Effects of Micro and Nanosilica in Concrete," Journal of the Transportation Research Board (May 2010)
28. J. H. Kim, P. Mondal, and S. P. Shah, "Cement-Based Materials Characterization at the Nanoscale: Nanoindentation and Ultrasonic AFM," *ACI Special Publication* (March 2010)
29. P. Mondal, S. P. Shah and L. D. Marks, (Nano-Scale Characterization of Cementitious Materials," *ACI Materials Journal* Volume 105, no. 2 (March-April 2008): 174-179
30. P. Mondal, S. P. Shah and L. D. Marks, "Use of Atomic Force Microscopy and Nanoindentation for Characterization of Cementitious Materials at the Nanoscale," *ACI Special Publication, SP-254: Nanotechnology of Concrete: Recent Developments and Future Perspectives* (October 2008): 41-56

31. S. P. Shah, P. Mondal, R. P. Ferron, N. Tregger, and Z. Sun," "Next Horizon in High Performance Concrete: Self-consolidating Concrete and Nanotechnology," *The Indian Concrete Journal* Volume 82, no. 1 (January 2008): 9-21
32. P. Mondal, J. T. DeWolf, "Development of Computer-Based System for the Temperature Monitoring of a Post-Tensioned Segmental Concrete Box Girder Bridge," *Computer-Aided Civil and Infrastructure Engineering* Volume 22 (2007): 65–77
33. P. Mondal, S. P. Shah and L. Marks, "A Reliable Technique to Determine the Local Mechanical Properties at the Nano-Scale for Cementitious Materials," *Cement and Concrete Research* Volume 37, no. 10 (October 2007): 1440–1444

H. Conference Publications:

1. D. Sarbapalli, P. Mondal, "Effect of TiO_2, ZnO Nanopowders on Metakaolin-Sodium Hydroxide Geopolymers" Proceedings of the 41st International Conference on Advanced Ceramics and Composites, 2018, 614, 251
2. S. Puligilla, D. Sarbapalli, P. Mondal, "Effects of addition of nucleation seeds in alkali activated binders," 71st RILEM Annual Week, Chennai, India, 2017
3. D. Sarbapalli, S. Puligilla, P. Mondal, "Nucleation seeding in alkali activated binders," 41st International Conference and Expo on Advanced Ceramics and Composites, Daytona Beach, Florida, 2017
4. P. Chaunsali, S. Lim, P. Mondal and D. Tobias, "Factors Influencing the Early-age Volume Change of Expansive Cements Relevant for Bridge Deck Concrete," Transportation Research Board 2013 Annual Meeting
5. P. Stynoski, P. Mondal, C. Marsh, E. Wotring, "Novel Processes to Improve CNT Utility in Cement," 4th International Symposium on Nanotechnology in Construction, Greece, 2012
6. S. Lim, P. Mondal; Effects of Nanosilica on Thermal Degradation of Cement Paste; 4th International Symposium on Nanotechnology in Construction, Greece, 2012
7. J. H. Kim, P. Mondal, and S. P. Shah, "Cement-Based Materials Characterization at the Nanoscale: Nanoindentation and Ultrasonic AFM," ACI Special Publication, March 2010
8. S. P. Shah, M. S. Konsta-Gdoutos, Z. S. Metaxa, P. Mondal, "Nanoscale Modification of Cementitious Materials," Nanotechnology in Construction Proceedings of the NICOM3, Prague, Czech Republic, Springer Berlin Heidelberg, April 2009, p 315-320
9. P. Mondal, S. P. Shah and L. D. Marks, "Nanomechanical Properties of Interfacial Transition Zone in Concrete," Nanotechnology in Construction Proceedings of the NICOM3, Prague, Czech Republic, Springer Berlin Heidelberg, April 2009, p 315-320
10. S. P. Shah and P. Mondal, "Advances in Concrete Technology," International Conference, Lahore, Pakistan, December 2007
11. P. Mondal, S. Shah and L. Marks, "Atomic Force Microscopy for Cementitious Materials," RILEM Proceedings pro045: Nanotechnology in Construction; 2006, p 179-185

I. Magazine Articles and Other Publications:

1. A. Ardeshirilajimi, D. Wu, P. Chaunsali, P. Mondal, Y. T. Chen, Mohammad Mahfuzur Rahman, Ahmed Ibrahim, Will Lindquist, Riyadh Hindi, "Bridge Decks: Mitigation of Cracking and

Increased Durability," *FHWA Report No. FHWA-ICT-16-016, Illinois Center for Transportation*, University of Illinois, Urbana, July 2016

2. P. Chaunsali, S. Lim, P. Mondal, D. Foutch, D. Richardson, Y. Tung, and R. Hindi, "Bridge Decks: Mitigation of Cracking and Increased Durability," *FHWA Report No. FHWA-ICT-13-023, Illinois Center for Transportation*, University of Illinois, Urbana, July 2013
3. "Biomineralization: The Key to Self-healing Concrete," *CEE Winter Magazine*, 2012
4. "Can Unleashed Spores Heal Concrete Cracks?," *ACerS Ceramics Tech Today*, January 25, 2012
5. S. P. Shah, P. Mondal, R. P. Ferron, N. Tregger, and Z. Sun, "News on Nanotechnology," *Public Roads Magazine*, November-December 2008

J. Invited Lectures:

1. Linking Concrete Chemistry with Performance under Stresses, Michigan Tech, 2016
2. Concrete: Material for Sustainable Infrastructure, University of Delaware, 2016
3. Are Nano-Materials and Nano-Technologies Ready for Full-Scale Concrete Construction Application?" ACI 123 Committee Forum, Spring Convention, Kansas City, USA, 2015
4. Panel speaker on Microbial Self-Healing of Concrete, International Cement Microscopy Association Conference, Seattle, USA, May 2015
5. Early-age Expansion of Calcium Sulfoaluminate Cements: Experiments and Modeling, Methods for Measurement and Mitigation of Early-Age Deformations, ACI Fall Convention, 2015
6. Calcium Sulfoaluminate Cements: Origin, Opportunities and Obstacles, Purdue University, 2014
7. Incorporation of Carbon Fibers, Carbon Nanotubes and Graphene Nanoplatelates in Cement-Based Materials, Georgia Tech, 2013
8. Concrete as a Multiphase Composite at Multiscale, Mechanical Engineering, University of Illinois, 2012
9. Bottom-up Materials Design for Sustainable Construction, Arizona State University, 2010
10. Nanotechnology for Characterization and Design of Advanced Construction Materials, University of Pittsburgh, 2008
11. Nanotechnology for Construction Materials, Colorado School of Mines, 2008
12. Nanotechnology for Construction Materials, Iowa State University, 2008
13. Characterization and Design of Advanced Construction Materials, Michigan State University, 2008
14. Characterization and Design of Advanced Construction Materials, Columbia University, 2008
15. Nanotechnology for Characterization and Design of Advanced Construction Materials, University of Houston, 2008
16. Nanotechnology for Characterization and Design of Advanced Construction Materials, North Carolina State University, 2008
17. Concrete Technology, Construction Engineering, Jadavpur University, Kolkata, India, 2006
18. Concrete Technology, Jadavpur University, Civil and Environmental Engineering, Kolkata, India, 2006

19. Concrete Technology: Characterization of Cementitious Materials at Nanoscale with a focus on Mechanical Properties, Indian Institute of Technology, Kharagpur, India, 2006

K. Conference Presentations:

1. X. Chen, P. Mondal, "Understanding the reaction kinetics: implications for future accelerators/retarders of alkali-activated binders" American Concrete Institute (ACI): Alkali-Activated Binders Committee Meeting, March 2019, Quebec City, Canada
2. X. Chen, P. Mondal, "Structural control of synthesized geopolymer gel by adjusting aqueous [Si] and [Al]: implications for future accelerators/retarders of geopolymers" American Concrete Institute (ACI) Open Topic Session, March 2019, Quebec City, Canada
3. X. Chen, S. Puligilla, D. Sarbapalli, P. Mondal, "Is reaction in alkali-activated binders a nucleation and growth controlled process?" American Concrete Institute (ACI) Mini Session on Recent Advances in Alternative Cements, October 2018, Las Vegas, Nevada
4. X. Chen, P. Mondal; Structural control of synthesized NASH gel by adjusting aqueous [Si] and [Al]: implications for future accelerators/retarders of geopolymers. 9th Advances in Cement-based Materials, ACerS, June 2018, State College, Pennsylvania (Poster)
5. D. Sarbapalli, S. Puligilla, X. Chen, P. Mondal, "Nucleation seeding in alkali-activated binders" Neutron Day 2017: Solving Grand Challenge Problems in Science & Engineering with Neutrons, November 2017, NIST Center for Neutron Research, Newark, Delaware (Poster)
6. S. Puligilla, D. Sarbapalli, P. Mondal, "Effects of addition of nucleation seeds in alkali activated binders," 71st RILEM Annual Week, Chennai, India, September 4-6, 2017
7. D. Sarbapalli, S. Puligilla, P. Mondal, "Nucleation seeding in alkali activated binders," 41st International Conference and Expo on Advanced Ceramics and Composites, Daytona Beach, Florida, January 22-27, 2017
8. X. Chen, L.J. Struble, P. Mondal, "Setting and nanostructural evolution of metakaolin geopolymer" 41st International Conference and Expo on Advanced Ceramics and Composites, Daytona Beach, Florida, January 22-27, 2017
9. S. Puligilla, D. Sarbapalli, P. Mondal, "The effects of nano particle addition on the reaction mechanism of alkali activated fly ash-slag binders," American Concrete Institute Convention, Philadelphia, October 23-27, 2016
10. W. HunniCutt, L. Struble, P. Mondal, "Effect of Aluminum Substitution in C-S-H on Viscoelastic Properties," 1st International Conference on Grand Challenges in Construction Materials, University of California, Los Angeles, CA, March 17-18, 2016
11. P. Chaunsali, P. Mondal, "Early-age Expansion of Calcium Sulfoaluminate Cements: Experiments and Modeling" American Concrete Institute Convention, Denver, CO, November 8-12, 2015
12. P. Chaunsali, P. Mondal, "Hydration and early-age expansion of calcium sulfoaluminate cement-based binders: experiments and thermodynamic modeling" 14th International Congress on the Chemistry of Cement, Beijing, China, October 13-16, 2015
13. W. HunniCutt, L. Struble, P. Mondal, "Dynamic Indentation Testing of C-S-H and C-(A)-S-H for Viscoelastic Properties," American Concrete Institute Convention, Washington D.C, October 26-30, 2014

14. P. Chaunsali, P. Mondal, "Physico-chemical Interaction between Mineral Admixtures and an OPC-CSA Cement System: Implication on Expansion" American Concrete Institute Convention, Washington D.C, October 26-30, 2014
15. P. Suraneni, S. Puligilla, E.H. Kim, X. Chen, L.J. Struble, P. Mondal, "Monitoring setting of geopolymers" International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM) TC 247-DTA Workshop, April 2014, Libertyville, Illinois
16. P. Mondal, B. Zhang, P. Stynoski, C. Marsh, W. T. Liu, "Cement Paste as a Source of Ca for Biomineralization," American Concrete Institute Convention, Phoenix, AZ, October 20-25, 2013
17. P. Stynoski, N. Wesslund, K. Ford, C. Arnett, P. Mondal, C. Marsh, "Biodeposition Kinetics of Sporosarcina Pasteurii," American Concrete Institute Convention, Phoenix, AZ, October 20-25, 2013
18. S. Puligilla, P. Mondal, "Combination of Chemical Treatment and Fourier Transform Infrared Spectroscopy Study for Fly Ash-Slag Geopolymers," Engineering Mechanics Institute Conference, Chicago, IL, August 2013
19. S. Puligilla, P. Mondal, "Coexistence of C-A-S-H and K-A-S-H Characterized through Selective Dissolution and FTIR Spectral Subtraction", 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013
20. S. Lim, P. Mondal, "Effects of Incorporating Nanosilica on the Carbonation of Cement Paste," 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013
21. S. Lim, J. Somaratna, P. Mondal, J. S. Popovics, "Global and Nanoscale Characterization of Heat-induced Damage in Portland Cement Paste," 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013 (Poster: Best Poster Award)
22. P. Stynoski, P. Mondal, C. Marsh, "The Importance of Silica Additives in Carbon Nanotube Reinforced Portland Cement Mortar," 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013 (Poster)
23. B. Zhang, P. Mondal, C. P. Marsh, and W-T. Liu, "The Role of Calcium in Biomineralization to Heal Cracks in Concrete," 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013
24. P. Chaunsali, P. Mondal, "Early-age Volume Change and Hydration Kinetics of Type K Cement: Effect of Chemical and Mineral Admixtures," 4th Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Urbana, IL, July 8-10, 2013 (Poster)
25. P. Chaunsali, P. Mondal, "Influence of Mineral Admixtures on Early-Age Behavior of Calcium Sulfoasluminate Cement," ACI Spring Convention, Minneapolis, April 2013
26. P. Stynoski, P. Mondal, C. Marsh, E. Wotring, "Novel Processes to Improve CNT Utility in Cement," 4th International Symposium on Nanotechnology in Construction, Greece, 2012
27. B. Zhang, P. Mondal, "Bio-Inspired Self-Healing Concrete," 3rd Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Austin, TX, June 10-12, 2012

28. P. Chaunsali, P. Mondal, "Early-Age Behavior of Expansive Cements: A Closer Look," 3rd Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Austin, TX, June 10-12, 2012 (Poster)
29. P. Stynoski, P. Mondal, Charles Marsh, E. Wotring, "Two Parameter Fracture Testing of Portland Cement Mortar Containing Silica Functionalized Carbon Nanotubes, 3rd Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Austin, TX, June 10-12, 2012 (Poster)
30. S. Lim, P. Mondal, "Effects of Nanosilica on Thermal Stability of Cement Paste," 3rd Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, Austin, TX, June 10-12, 2012 (Poster)
31. P. Mondal, S. Puligilla, Effects of Slag on Early Age Properties of Fly Ash-Slag Geopolymer," ACI Convention, Spring 2011
32. P. Mondal, S. P. Shah and L. Marks, "Effects of Nanomaterials on Durability of Concrete," Transportation Research Board, January 2011
33. P. Stynoski, P. Mondal, C. Marsh, L. Struble, "Novel Processing Techniques for Improving the Dispersion and Bonding of Carbon Nanotubes in Cement-Based Composites," 1st Advances in Cement-based Materials: Characterization, Processing, Modeling and Sensing, American Ceramics Society Annual Conference, West Lafayette, IN, July, 2010
34. P. Mondal, A. Chopra, "Biomineralization in Cementitious Systems for Sustainable Construction Materials," US-Egypt Conference/Workshop on Sustainable Green Building in Desert Environment, Cairo, Egypt, March 22-24, 2010
35. S. P. Shah, P. Mondal, J. H. Kim, "Nanoscale Characterization of Concrete," ACI Fall 2009 Convention, New Orleans, LA, November 2009
36. P. Mondal, S. P. Shah and L. Marks, "Effects of Silica Fume on Nanomechanical Properties of Concrete; ACI Fall Convention," San Antonio, TX, March 2009
37. P. Mondal, S. P. Shah and L. Marks, "Nano-Mechanical Properties of Concrete," ACI Fall Convention, Los Angeles, CA, March 2008
38. P. Mondal, S. P. Shah and L. Marks, "Study of Nanoscale Local Mechanical Properties of Cement Paste with Different Water to Cement Ratio at Different Degree of Hydration," ACBM Semiannual Meeting, Evanston, IL, October 2007 (Poster)
39. P. Mondal, S. P. Shah and L. Marks, "Determination of Nano-Mechanical Properties of Different Phases of Cement Paste and Interfacial Transition Zone in Concrete," American Ceramic Society 109th Annual Meeting, Detroit, MI, September 2007
40. P. Mondal, S. P. Shah and L. Marks, "Nano-Mechanical Properties of Different Phases of Cement Paste and Interfacial Transition Zone in Concrete," ACBM Semiannual Meeting, Evanston, IL, March 2007 (Poster: first prize)
41. P. Mondal, S. P. Shah and L. Marks, "Nano-Scale Characterization of Cementitious Materials," ACI Fall Convention,, Denver, CO, November 2006
42. P. Mondal, S. P. Shah and L. Marks, "Characterization of Cementitious Materials at Nano Scale with a focus on Mechanical Properties," ACBM Semiannual Meeting; Evanston, IL, October 2006 (Posters: first prize)
43. P. Mondal, S. P. Shah and L. Marks, "Characterization of Cementitious Materials at Nano Scale with a focus on Mechanical Properties," NSF Workshop on Nanomodification of Cementitious Materials: Portland Cement Concrete and Asphalt Concrete; Gainesville, FL, August 2006

44. P. Mondal, S. P. Shah and L. Marks, "Nano-Scale Characterization of Cementitious Materials," ACBM Semiannual Meeting, Evanston, IL, March 2006 (Poster: second prize)
45. P. Mondal, J. T. DeWolf, P. D'Attilio, E. Feldblum, "Continuous Monitoring for the Management, Safety and Reliability of Connecticut's Bridge Infrastructure," Sixth International Bridge Engineering Conference, Boston, MA, July 2005
46. P. Mondal, S. P. Shah and L. Marks, "Use of Atomic Force Microscopy for Cementitious Materials," 16th ACBM/NIST Computer Modeling Workshop, Gaithersburg, MD, June 2005
47. P. Mondal, J. T. DeWolf, "Long-Term Monitoring of Temperatures in a Segmental Concrete Box-Girder Bridge in Connecticut," Structural Materials Technology (SMT): NDE/NDT for Highways and Bridges, ASNT, Buffalo, NY, September 2004

L. Professional Service:

University of Delaware

1. Undergraduate Curriculum Committee
2. CEM Search Committee 2018-2019
3. Rail Search Committee 2019-2020

Technical Community

4. Paper review: ASCE Journal of Materials in Civil Engineering
5. Paper review: ACI Conventions
6. Paper review: TRB First International Conference on Nanotechnology in North America
7. Paper review: Concrete International
8. Paper review: Journal of ASTM International
9. Paper review: ASCE Journal of Bridge Engineering
10. Paper review: Materials and Structure
11. Paper review: Cement and Concrete Composite
12. Proposal review: Cement Chemistry, 2010 FONDECYT National Research Funding Competition, National Fund for Scientific & Technological Development (FONDECYT), Chile
13. Book review: Cement Chemistry by H. F. W. Taylor, Thomas Telford, UK
14. Proposal Review: National Science Foundation, CMMI
15. Proposal Review: National Science Foundation, SBIR

N. Student Advising:

M.S. Thesis Students: University of Illinois

1. Sravanthi Puligilla, Monitoring the Hardening Rate and Exploring the Role of Slag in the Hardening and Microstructural Development of Fly Ash-slag Geopolymer, 2011

2. Peter Stynoski, Toward Improving Carbon Nanotube Utilization in Portland Cement Mortar Using Novel Processing Techniques, 2011
3. Ranjani Mosale Vijayakumar, Early-age Volume Change of Geopolymer, 2013
4. Erik Wotring, Dispersion of Graphene Nanoplatelets in Polar Fluids, 2014
5. Di Wu, Influence of Lightweight Aggregate and Calcium Sulfoaluminate Cement on Deformation of Ordinary Portland Cement Mortar and Concrete, 2015
6. Palash Badjatia, Chemical Admixtures in Alkali Activate Binders, 2017
7. Bartik Pandel, Understanding the Retardation of Cement Hydration by Zinc, 2018

M.S. Thesis Students: University of Delaware

1. Emmanuel Chinaka, Bond Strength between Ultra-High Performance Concrete and Pre-cast Elements, 2020 (expected)
2. Robin Deb, Interaction between Calcium Sulfoaluminate Cement and Chemical Admixtures, 2020 (expected)

Ph.D. Thesis Students: University of Illinois

1. Seungmin Lim, Effects of elevated temperature exposure on cement-based composite materials, 2015
2. Piyush Chaunsali, Early-age hydration and volume change of calcium sulfoaluminate cement-based binders, 2015
3. Peter Stynoski, Quantification of bond strength between cementitious materials and microbially-induced calcium carbonate precipitates, 2015
4. Sravanthi Puligilla, Effect of seeding agent on Microstructural Development of geopolymer, 2017
5. Will Hunnicutt, Effects of Alumina Substitution on Viscoelastic Properties of C-S-H, 2018
6. Ardavan Ardeshirilajimi, Lightweight Aggeregates in Concrete, 2018
7. Bin Zhang, Bio-mineralization for Self-healing Concrete, 2019
8. Robbie Damiani, Viscoelastic Inclusions in Cement-based Materials, 2020

Ph.D. Thesis Students: University of Deleware

1. Jennifer Mill, Early-age Structure Formation in Alkali Activated Binder, 2021 (expected)