

## Kay Wille, Ph.D.

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### CONTACTS

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Website: <https://acmc.engr.uconn.edu>

### PROFESSIONAL EXPERIENCE

08/2016 – Present	Associate Professor	Dept. of Civil & Env. Eng., Univ. of Connecticut, USA
08/2010 – 08/2016	Assistant Professor	Dept. of Civil & Env. Eng., Univ. of Connecticut, USA
04/2008 – 08/2010	Postdoctoral Researcher	Dept. of Civil & Env. Eng., Univ. of Michigan, USA
05/2002 – 03/2008	Graduate Research and Teaching Assistant	Dept. of Civil Eng. and Building Materials, Univ. of Leipzig, Germany
09/1998 – 04/2002	Research Assistant	Dept. of Statics & Dynamics, Univ. of Leipzig, Germany

### PROFESSIONAL PREPARATION

04/2002 – 02/2008	Ph.D. (summa cum laude)	Civil Engineering, University of Leipzig, Germany
08/1997 – 04/2002	Diploma (with distinction)	Civil Engineering, University of Leipzig, Germany

### ADMINISTRATIVE EXPERIENCE

09/2022 – present	Structures and Applied Mechanics (STAM) Group Coordinator
08/2015 – 05/2016	Director for Graduate Program of Civil Engineering

### FUNDED PROJECTS

No.	Year	Months	Agency, Title and PIs	Award	Own share PI/Co-PI
25.	2023	26	<b>Geological Survey of Ireland</b> , "Investigation and Analysis of Concrete Blocks from Ireland" – Wille (PI) and Chrysochoou (Co-PI), Mahony (Co-PI)	\$119,351	\$47,740
24.	2023	12	<b>Department of Transportation</b> , "Efficiency of Fiber Reinforcement in Ultra-High Performance Concrete" – Wille (PI)	\$81,883	\$81,883
23.	2023	24	<b>National Institute of Standard and Technology</b> , "Risk Management for Pyrrhotite-Induced Concrete Deterioration" – Wille (PI) and Frame (Co-PI), Mahony (Co-PI)	\$415,000	\$166,000
22.	2021	36	<b>National Institute of Standard and Technology</b> , "Risk Management for Pyrrhotite-Induced Concrete Deterioration" – Wille (PI) and Chrysochoou (Co-PI), Mahony (Co-PI)	\$1,400,000	\$560,000
21.	2020	28	<b>National Institute of Standard and Technology</b> , "Development of a Risk Assessment Framework for Pyrrhotite-Induced Concrete Deterioration" – Wille (PI), Chrysochoou (Co-PI), Mahony (Co-PI)	\$1,100,483	\$440,193
20.	2019	12	<b>INTERNAL: University of Connecticut</b> , "Development, verification and validation of a Test Method for Pyrrhotite in Concrete" – Wille (PI) and Chrysochoou	\$300,000	\$100,000

			(Co-PI), Mahony (Co-PI)		
19.	2021	23	<b>Department of Transportation</b> , "Implementation of UHPC Technology into the New England Construction Industry" – Wille (PI) and Malla (Co-PI)	\$173,885	\$147,802
18.	2019	45	<b>Department of Transportation</b> , "Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections" – Wille (PI) and Malla (Co-PI)	\$280,000	\$238,000
17.	2015	9	<b>Attorney General Office</b> , "Investigation the Deterioration of Basement Walls made of Concrete in CT" – Wille (PI)	\$96,532	\$96,532
16.	2015	12	<b>Schlumberger Foundation</b> , "Multi-Level Experimental Investigation and Complementary Numerical Simulation of UHP-FRC Under High Strain Rate Loading – Extension, Fellowship: Man Xu" – Wille (PI)	\$46,619	\$46,619
15.	2015	39	<b>CT Department of Transportation / Federal Highway Administration</b> , "Repair of Steel Beam/Girder Ends with Ultra High-Strength Concrete (Phase II)" – Zaghi (PI), Wille (Co-PI)	\$676,690	\$169,173
14.	2015	36	<b>Department of Education</b> , "Engineering Next Generation Infrastructure: National Excellence in Education and Research, Department of Education" – Accorsi (PI), multiple Co-PIs	\$1,570,025	\$157,003
13.	2015	10	<b>CADA – Colombia</b> , "UHPC Development using Materials from Colombia - Phase I" – Wille (PI)	\$100,547	\$100,547
12.	2015	60	<b>National Science Foundation</b> , "CAREER: Understanding Behavior and Properties of Nano-Sized Particles in Cement Based Materials" – Wille (PI)	\$500,000	\$500,000
11.	2014	12	<b>Schlumberger Foundation</b> , "Multi-Level Experimental Investigation and Complementary Numerical Simulation of UHP-FRC Under High Strain Rate Loading, Fellowship: Man Xu" – Wille (PI)	\$45,800	\$45,800
10.	2014	10	<b>CASE</b> , "Winter Highway Maintenance Operations in Connecticut" – Mahoney (PI), multiple Co-PIs	\$67,390	\$6,739
9.	2013	12	<b>Arup USA, Inc.</b> , "Sprayable Ultra-high performance concrete" – Wille (PI)	\$29,500	\$29,500
8.	2013	19	<b>CT Department of Transportation</b> , "Repair of Steel Beam/Girder Ends with Ultra High-Strength Concrete" – Zaghi (PI) and Wille (Co-PI)	\$131,771	\$65,886
7.	2012	13	<b>Anocoil</b> , "Testing of Tetrahedral Shaped Reinforcement" – Wille (PI)	\$10,000	\$10,000
6.	2011	16	<b>Professional Service Industries, Inc./Federal Highway Administration</b> , "Development of Non-Proprietary UHPC" – Wille (PI)	\$130,675	\$130,675
5.	2011	40	<b>Department of Homeland Security</b> , "Homeland Security Science Technology Engineering and Mathematics (HS-STEM) Career Development Grant" – Wille (PI)	\$500,000	\$200,000
4.	2011	24	<b>Department of Homeland Security, National Transportation Security Center of Excellence</b> , "Bond	\$248,649	\$248,649

			between UHP-FRC and Steel Reinforcement Bars” – Wille (PI)		
3.	2011	24	<b>University of Connecticut</b> , “Ultra-High Speed Video System” – Wille (Co-PI)	\$87,000	\$10,963
2.	2011	12	<b>INTERNAL: UConn Research Foundation (UCRF) Large Faculty Grant</b> , “High Strength Pervious Concrete Pavement System with Air Purification Effect” – Wille (PI)	\$25,400	\$25,400
1.	2010	22	<b>Department of Homeland Security, National Transportation Security Center of Excellence</b> , “Advanced Concrete and Geo-materials for Resilient Transportation Infrastructure” – Wille (PI)	\$118,398	\$29,600

## CONSULTING ACTIVITIES

- 2014, University of Michigan, UHPC, Project Consultant.

## TEACHING

### Undergraduate

- CE 2110 - Applied Mechanics I – Statics: (2x2013, 2x14, 2x15, 16, 17, 18, 19)
- CE 3110 - Mechanics of Materials (2016, 17, 20)
- CE 3520 - Civil Engineering Materials (2015, 2x16, 2x17, 2x18, 19, 2x20, 21)
- CE 3640 - Design of Reinforced Concrete Structures: (2011-19, 21, 22)

### Graduate

- CE 5010 - Seminar in Structures and Applied Mechanics (2021)
- CE 5610 - Advanced Reinforced Concrete Structures: (2011, 13, 15, 17, 20, 22)
- CE 5640 - Prestressed Concrete Structures: (2012, 14, 16, 18, 20, 21, 23)

## ADVISING

### Current Post-docs and Graduate Advisees with expected graduation

- Bijaya Rai (PhD student - 2023)
- Leana Santos (PhD student - 2024)
- Meshach Ojo (PhD student - 2027)
- Sampa Aktner (PhD student - 2026)
- Mandip Dahal (PhD student - 2026)
- Aagya Dahal (PhD student – 2027)
- Ana C Vieira Roche (PhD student - 2028)

### PhD students graduated and current placement

- Douglas Hendrix (2021 – Pfizer)
- Manish Roy (2019 – Assistant Professor in Residence, University of Connecticut)
- Aileen Vandenberg (2018 – PostDoc, Technische Universität Braunschweig)
- Dominic Kruszewski (2018 – COWI Consulting Inc., NYC, NY, USA)
- Mostafa Hassan (2018 – Associate Professor, Egypt)
- Man Xu (2016 – California Department of Transportation, CA)
- Rui Zhong (2015 – Associate Professor, Southeast University, China)

### MS students graduated

- Rinchen Sherpa (2023)
- Christopher Boisvert-Cotulio (2021)
- Corey Hollman (2015)
- Richard Way (2012)

**Post Doctorates and Visiting Scholars supervised**

- Andrew Meguerdichian (2021-2022)
- Zahra Abdollahnejad (2019-2021)
- Harish Kumar (2019)
- Ren Liang (2015-2016)
- Rui Zhong (2015-2016)
- Xiaoyue Zhang (2013-2014)

**CITATIONS** (as of August 23<sup>rd</sup>, 2023)

- **Scopus:** 3687, h-index 28
- **Google Scholar:** 5610, h-index 34

**PUBLICATIONS**

- **Books / Patents:** 1 / 2
- **Journal papers published:** 47
- **Full Conference papers:** 30

**Books / Book Chapters and Patents**

1. Wille, K., "Beschreibung des Tragverhaltens neuartiger Verbundkonstruktionen unter Verwendung eines flächigen Bewehrungselementes" ("Load Carrying Behaviour of Novel Composite Structures with regard to a Two-dimensional Reinforcement"), University of Leipzig, Doctoral Thesis, 2008, 222 pages, ISBN: 978-3-8370-1029-98.
2. Tue, N. V., Wille, K. "Hybride Verbundkonstruktion" ("Hybrid Composite Construction" patent), patent number: 10 2007 033 557.3, File date: July 2007.
3. Tue, N. V., Wille, K. "Hybride Verbundkonstruktion" ("Hybrid Composite Construction" utility patent), utility patent number: 20 2007 010 034.5, File date: July 2007.

**Journal papers published**

1. Hassan, M., & Wille, K. (2022), Direct tensile behavior of steel fiber reinforced ultra-high performance concrete at high strain rates using modified split Hopkinson tension bar. *Composites Part B: Engineering*, (vol. 246).
2. Xu, M., & Wille, K. (2021). Material based dynamic increase factor models for UHP-FRC under compression and tension. *Construction and Building Materials*, (vol. 310).
3. Abdollahnejad, Z., Mastali, Wille, K., Maguire, Rahim, & Kinnunen (2021). Effects of Using Different Co-binders and Fibers on Mechanical and Durability Performances of Alkali-Activated Soapstone Binders (AAS). *Waste and Biomass Valorization*, (vol. 13).
4. Vandenberg, A., Bessaies-Bey, H., Wille, K., & Roussel, N. (2021). Influence of mixing on the generation of nanoparticles in cement systems. *Cement and Concrete Research*, (vol. 143).
5. Cruz-Hernandez, Y., Chrysochoou, M., & Wille, K. (2020). Wavelength dispersive X-ray fluorescence method to estimate the oxidation reaction progress of sulfide minerals in concrete. *Spectrochimica Acta - Part B Atomic Spectroscopy*, (vol. 172).
6. Qiu, M., Shao, X., Wille, K., Yan, B., & Wu, J. (2020). Experimental Investigation on Flexural Behavior of Reinforced Ultra High Performance Concrete Low-Profile T-Beams. *International Journal of Concrete Structures and Materials*.
7. Hendrix, D., Bassim, N., & Wille, K. (2019). Investigation Methods for Characterizing Nanoparticles in Concrete. *ACI Special Publication*, (vol. 335, pp. 37-48).
8. Hendrix, D., McKeon, J., & Wille, K. (2019). Behavior of Colloidal Nanosilica in an Ultrahigh Performance Concrete Environment Using Dynamic Light Scattering. *MDPI Materials*.
9. Kruszewski, D., Esmaili Zoghi, A., & Wille, K. (2019). Finite element study of headed shear studs embedded in ultra-high performance concrete. *Engineering Structures*, (vol. 188, pp. 538-552).

10. Roy, M., Hollmann, C., & Wille, K. (2019). Influence of Fiber Volume Fraction and Fiber Orientation on the Uniaxial Tensile Behavior of Rebar-Reinforced Ultra-High Performance Concrete. *MDPI Fibers*.
11. Kruszewski, D., Esmaili Zaghi, A., & Wille, K. (2019). Durability Evaluation of Headed Shear Studs Embedded in Ultra-High Performance Concrete via Electrochemical Corrosion. *Journal of Bridge Engineering*, (5 ed., vol. 24).
12. Hassan, M., & Wille, K. (2018). Comparative experimental investigations on the compressive impact behavior of fiber-reinforced ultra high-performance concretes using split Hopkinson pressure bar. *Construction and Building Materials*, (vol. 191, pp. 398-410).
13. Zhong, R., & Wille, K. (2018). Deterioration of residential concrete foundations: The role of pyrrhotite-bearing aggregate. *Cement and Concrete Composites*, (vol. 94, pp. 53-61).
14. Kruszewski, D., Wille, K., & Esmaili Zaghi, A. (2018). Design considerations for headed shear studs embedded in ultra-high performance concrete as part of a novel bridge repair method. *Journal of Constructional Steel Research*, (vol. 149, pp. 180-194).
15. Kruszewski, D., Wille, K., & Zaghi, A. E. (2018). Push-Out Behavior of Headed Shear Studs Welded on Thin Plates and Embedded in UHPC. *Engineering Structures*, (vol. 173, pp. 429-441).
16. Vandenberg, A., & Wille, K. (2017). Evaluation of resonance acoustic mixing technology using ultra high performance concrete. *Construction and Building Materials*, (vol. 164, pp. 716-730).
17. Zhong, R., & Wille, K. (2017). Influence of matrix and pore system characteristics on the durability of pervious concrete. *Construction and Building Materials*, (vol. 162, pp. 132-141).
18. Zhong, R., Wille, K., & Viegas, R. (2017). Material efficiency in the design of UHPC paste from a life cycle point of view. *Construction and Building Materials*, (vol. 160, pp. 505-513).
19. Zmetra, K., McMullen, K., Esmaili Zaghi, A., & Wille, K. (2017). Experimental Study of UHPC Repair for Corrosion Damaged Steel Girder Ends. *Journal of Bridge Engineering*, (8 ed., vol. 22).
20. Hassan, M., & Wille, K. (2017). Experimental impact analysis on ultra-high performance concrete (UHPC) for achieving stress equilibrium (SE) and constant strain rate (CSR) in Split Hopkinson pressure bar (SHPB) using pulse shaping technique. *Construction and Building Materials*, (vol. 144, pp. 747-757).
21. Roy, M., Hollmann, C., & Wille, K. (2017). Influence of volume fraction and orientation of fibers on the pullout behavior of reinforcement bar embedded in ultra high performance concrete. *Construction and Building Materials*, (vol. 146, pp. 582-593).
22. Zhong, R., & Wille, K. (2016). Compression response of normal and high strength pervious concrete. *Construction and Building Materials*, (vol. 109, pp. 177-187).
23. Xu, M., Hallinan, B., & Wille, K. (2016). Effect of loading rates on pullout behavior of high strength steel fibers embedded in ultra-high performance concrete. *Cement and Concrete Composites*, (vol. 70, pp. 98-109).
24. Zhong, R., Xu, M., Netto, R. V., & Wille, K. (2016). Influence of pore tortuosity on hydraulic conductivity of pervious concrete: Characterization and modeling. *Construction and Building Materials*, (vol. 125, pp. 1158-1168).
25. Zhong, R., & Wille, K. (2016). Linking pore system characteristics to the compressive behavior of pervious concrete. *Cement and Concrete Composites*, (vol. 70, pp. 130-138).
26. Xu, M., & Wille, K. (2016). Numerical Investigation of the Effects of Pulse Shaper, Lateral Inertia, and Friction on the Calculated Strain-Rate Sensitivity of UHP-FRC Using a Split Hopkinson Pressure Bar. *Journal of Materials in Civil Engineering*.
27. Zhong, R., & Wille, K. (2015). Material design and characterization of high performance pervious concrete. (vol. 98, pp. 51-60).
28. Xu, M., & Wille, K. (2015). Fracture Energy of UHP-FRC under Direct Tensile Loading Applied at Low Strain Rates. *Composites Part B: Engineering Journal*.

29. Way, R. T., & Wille, K. (2015). The Effect of Heat Induced Chemical Degradation on the Residual Mechanical Properties of Ultra-High Performance Fiber Reinforced Concrete. *ASCE Journal of Materials in Civil Engineering*.
30. Wille, K., Xu, M., El-Tawil, S., & Naaman, A. E. (2015). Dynamic Impact Factors of Strain Hardening UHP-FRC under Direct Tensile Loading at Low Strain Rates. *Materials and Structures*, (pp. 17 pages).
31. Zhong, R., & Wille, K. (2015). Equal Arc Segment Method for Averaging Data Plots Exemplified for Averaging Stress versus Strain Curves of Pervious Concrete. (pp. 8 pages). *ASCE Journal of Materials in Civil Engineering*.
32. Wille, K., & Boisvert-Cotulio, C. (2015). Material Efficiency in the Design of Ultra-High Performance Concrete. *Construction and Building Material*, (vol. 86, pp. 33 - 43).
33. Wille, K., El-Tawil, S., & Naaman, A. E. (2014). Properties of strain hardening ultra high performance fiber reinforced concrete (UHP-FRC) under direct tensile loading. *Cement and Concrete Composites*, (vol. 58, pp. 53-66).
34. Pyo, S., Wille, K., El-Tawil, S., & Naaman, A. E. (2014). Strain rate dependent properties of ultra high performance fiber reinforced concrete (UHP-FRC) under tension. *Cement and Concrete Composites*, (vol. 56, pp. 15-24).
35. Wille, K., & Naaman, A. E. (2013). Effect of Ultra-High-Performance Concrete on Pullout Behavior of High-Strength Brass-Coated Straight Steel Fibers. *ACI Materials Journal*, (4 ed., vol. 110, pp. 451 - 462).
36. Wille, K., Tue, N. V., & Parra-Montesinos, G. J. (2013). Fiber distribution and orientation in UHP-FRC beams and their effect on backward analysis. *Materials and Structures*, (pp. 16 pages).
37. Wille, K., & Tue, N. V. (2013). Tensile load capacity analysis of perforated reinforcement sheet. *Materials and Structures*, (pp. 17 pages).
38. Wille, K., & Naaman, A. E. (2012). Pullout Behavior of High-Strength Steel Fibers Embedded in Ultra-High-Performance Concrete. *ACI Materials Journal*, (4 ed., vol. 109, pp. 479 - 488).
39. Wille, K., Naaman, A. E., El-Tawil, S., & Parra-Montesinos, G. J. (2012). Ultra-high performance concrete and fiber reinforced concrete: achieving strength and ductility without heat treatment. *Materials and Structures*, (3 ed., vol. 45, pp. 309 - 324).
40. Wille, K., & Parra-Montesinos, G. J. (2012). Effect of Beam Size, Casting Method, and Support Conditions on Flexural Behavior of Ultra-High-Performance Fiber-Reinforced Concrete. *ACI Materials Journal*, (3 ed., vol. 109, pp. 379-388).
41. Wille, K., Naaman, A. E., & El-Tawil, S. (2011). Ultra High Performance Fiber Reinforced Concrete (UHP-FRC) Record Performance under Tensile Loading. (11 ed., vol. 33, pp. 35-41).
42. Kim, D., Wille, K., El-Tawil, S., & Naaman, A.E. (2011). Testing of Cementitious Materials Under High-Strain-Rate Tensile Loading Using Elastic Strain Energy. *Concrete International*, (vol. 137, No. 4, pp. 268 – 275). *ASCE Journal of Engineering Mechanics*.
43. Wille, K., Naaman, A.E., & Parra-Montesinos, G. (2011). Ultra High Performance Concrete with Compressive Strength Exceeding 150 MPa (22 ksi): A Simpler Way. *ACI Materials Journal*, (vol. 108, No. 1, pp. 46 – 54).
44. Wille, K., Kim, D., & Naaman, A. E. (2011). Strain-Hardening UHP-FRC with Low Fiber Contents. *Materials and Structures*, (vol. 44, No. 3, pp. 583 – 598).
45. Wille, K., Loh, K. J. (2010). Nano-Engineering Ultra-High Performance Concrete with Multi-Walled Carbon Nanotubes. *Journal of the Transportation Research Board*, (No. 2142, pp. 119 – 126).
46. Tue, N.V., Henze, S., Kuchler, M., Schenck, G., Wille, K. (2010). "Ein optoanalytisches Verfahren zur Ermittlung der Faserverteilung und -orientierung in stahlfaserverstärktem UHFB" ("An optoanalytic method for the determination of the distribution and orientation of fibres in steel fibre reinforced UHPC"), *Beton- und Stahlbetonbau*, Vol. 102, No. 10, Oct. 2007, pp. 674 – 680.

47. Wille, K., Dehn, F., Tue, V.T. (2009). "Bruchmechanische Kenngrößen hochfester Leichtbetone" ("Fracture parameter of high strength lightweight concretes"), Bauingenieur, Band 80., Juni 2005, pp. 327-333.

#### Full conference papers

1. Rai, B., & Wille, K. (2023). Non-Proprietary Ultra-High Performance Concrete with Recycled Glass Powder. Third International Interactive Symposium on UHPC. Wilmington, DE
2. Sherpa, R., Wille, K., & Jang, S. (2022) Damage identification of crumbling foundation using non-destructive methods and image processing. American Association of Engineering Education Northeast Conference.
3. Rai, B., & Wille, K. (2020). Development and testing of High / Ultra-High Early Strength Concrete. Proceedings from Proceedings of HiPerMat 2020, 5th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials.
4. Hendrix, D., & Wille, K. (2020). The Influence of Simple Polymers on the Dispersion of Colloidal Nanosilica in Ultra-High Performance Concrete. Proceedings from Proceedings of HiPerMat 2020, 5th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials.
5. Vandenberg, A., Bessaies-Bey, H., Roussel, N., & Wille, K. (2018). Enhancing Printable Concrete Thixotropy by High Shear Mixing. (pp. 94-101). First Rilem International Conference on Concrete and Digital Fabrication – Digital Concrete 2018. [https://doi.org/10.1007/978-3-319-99519-9\\_9](https://doi.org/10.1007/978-3-319-99519-9_9).
6. McMullen, K., Kruszewski, D., Esmaili Zaghi, A., & Wille, K. (2017). A Novel Repair Method for Steel Girders with Corrosion Damage Utilizing UHPC. International Bridge Conference 17-106, National Harbor, Maryland, USA
7. Zmetra, K., Hain, A., Esmaili Zaghi, A., & Wille, K. (2017). Finite Element Analysis and Experimental Comparison for Repair of Corrosion Damaged Steel Girder Ends Using Ultra-High Performance Concrete Encasement. 96th Transportation Research Record: Compendium of Papers.
8. Vandenberg, A., Massucci, D., Woltornist, S., Adamson, D., & Wille, K. (2016). Characterization of high-strength cement paste with pristine graphite and heptane-graphite emulsion. First International Interactive Symposium on UHPC. Des Moines, Iowa.
9. Roy, M., Hollmann, C., & Wille, K. (2016). Effect of Fibre Orientation on Pullout Behaviour of Rebar embedded in UHPC. HiPerMat 2016 4th International Symposium on Ultra-High Performance Concrete and High Performance Materials. Kassel, Germany.
10. Zhong, R., & Wille, K. (2016). Material Efficiency in the Design of UHPC Paste. First International Interactive Symposium on UHPC. Des Moines, Iowa.
11. Vandenberg, A., & Wille, K. (2016). Mixing UHPC using Resonance Acoustic Technology. HiPerMat 2016 4th International Symposium on Ultra-High Performance Concrete and High Performance Materials. Kassel, Germany.
12. Xu, M., & Wille, K. (2016). Three Dimensional Fracture Material Model for Ultra-high Performance Fiber Reinforced Concrete under Tensile Loading. First International Interactive Symposium on UHPC. Des Moines, Iowa.
13. Xu, M., & Wille, K. (2016). Three Dimensional Plasticity Material Model for Ultra-High Performance Fibre Reinforced Concrete under Compressive Loading. HiPerMat 2016 4th International Symposium on Ultra-High Performance Concrete and High Performance Materials. Kassel, Germany.
14. Zhong, R., & Wille, K. (2016). Ultra-High Performance Concrete: Material Efficiency in the Paste Design. HiPerMat 2016 4th International Symposium on Ultra-High Performance Concrete and High Performance Materials. Kassel, Germany.

15. Vandenberg, A., & Wille, K. (2015). Understanding the Dispersion Behavior of Nano-Pozzolan Materials in Ultra High Performance Concrete. Chicago, IL: Proceedings of NICOM 5, Fifth International Symposium on Nanotechnology in Construction.
16. Kevin, Z., Esmaili Zaghi, A., & Wille, K. (2015). Rehabilitation of Steel Bridge Girders with Corroded Ends Using Ultra-High Performance Concrete. Proceedings from PROCEEDINGS, Structures Congress 2015. (pp. 1411-1422). American Society of Civil Engineers/Structures Congress 2015.
17. Xu, M., & Wille, K. (2014). Calibration of K&C Concrete Model for UHPC in LS-DYNA. Jiujiang: Advanced Materials Research: Proceedings of the 4th International Conference on Materials Science and Engineering (ICMSE 2014).
18. Hollmann, C., & Wille, K. (2013). Influence of fiber orientation on the properties of strain hardening ultra-high performance fiber reinforced concrete (UHPFRC) under direct tensile loading. (pp. 1721 – 1726). Research and Applications in Structural Engineering, Mechanics & Computation: Proceedings of the Fifth International Conference on Structural Engineering, Mechanics & Computation, Cape Town, South Africa.
19. Wille, K., & Naaman, A. E. (2012). Preliminary Investigation on Ultra-High Performance Ferrocement. (pp. 251-260). Proceedings of Ferro10 – International Symposium on Ferrocement and Thin Reinforced Cement Composites.
20. Wille, K. (2012). Concrete strength dependent pull-out behaviour of deformed steel fibers. Proceedings of BEFIB2012 – 8th RILEM International Symposium on Fibre Reinforced Concrete.
21. Groeger, J., Tue, N. V., & Wille, K. (2012). Bending Behaviour and Variation of flexural Parameters of UHPFRC. (pp. 419-426). Ultra-High Performance Concrete and Nanotechnology in Construction, Hipermat, 3rd International Symposium.
22. Wille, K., & Zhong, R. (2012). High Strength Pervious Concrete. (pp. 825-832). Ultra-High Performance Concrete and Nanotechnology in Construction, Hipermat, 3rd International Symposium.
23. Way, R., & Wille, K. (2012). Material Characterization of an Ultra High-Performance-Fibre Reinforced Concrete under Elevated Temperature. (pp. 565-572). Ultra-High Performance Concrete and Nanotechnology in Construction, Hipermat, 3rd International Symposium.
24. Naaman, A. E., & Wille, K. (2012). The Path to Ultra-High Performance Fiber Reinforced Concrete (UHP-FRC): Five Decades of Progress. (pp. 3-16). Ultra-High Performance Concrete and Nanotechnology in Construction, Hipermat, 3rd International Symposium.
25. Wille, K., El-Tawil, S., & Naaman, A. E. (2011). Strain Rate Dependent Tensile Behavior of Ultra-High Performance Fiber Reinforced Concrete. (pp. 367-373). HPRCC6, Proc. 6th International. RILEM workshop on High Performance Fiber Reinforced Cement Composites.
26. Kim, D., Wille, K., Naaman, A. E., & El-Tawil, S. (2011). Strength Dependent Tensile Behavior of Fiber Reinforced Concrete with Deformed Steel Fibers. (pp. 2-9). HPRCC6, Proc. 6th International. RILEM workshop on High Performance Fiber Reinforced Cement Composites.
27. Wille, K., & Naaman, A. E. (2010). Bond Stress Slip Hardening Behavior of Steel Fibers Embedded in Ultra High Performance Concrete. Dresden: Proceedings of 18th European Conference on Fracture and Damage of Advanced Fiber-Reinforced Cement-Based Materials.
28. Wille, K., & Naaman, A. E. (2010). Fracture Energy of UHPFRC under direct tensile loading. Cheju: Proceedings of FraMCoS-7.
29. Wille, K., & Loh, K. J. (2010). Nano-Engineering Ultra-High Performance Concrete with Multi-Walled Carbon Nanotubes. Irvine: 1st International Conference in North America on Nanotechnology in Cement and Concrete
30. Naaman, A. E., & Wille, K. (2010). Some Correlation Between High Packing Density, Ultra-High Performance, Flow Ability, and Fiber Reinforcement of a Concrete Matrix. Guimaraes: BAC2010 – 2nd Iberian Congress on Self Compacting Concrete.



**INVITED TALKS**

1. Rai, B., Wille, K. (June 2023) Development of Non-proprietary Ultra-High Performance Concrete, 13th Advances in Cement-Based Materials, Columbia University.
2. Wille, K., Chrysochoou, M., Mahoney, J., Frame, L. (2023, June). Research on Concrete with Pyrrhotite containing Aggregates. Presentation to the Massachusetts Department of Transportation (MassDOT) at the University of Connecticut.
3. Wille, K., Chrysochoou, M., Mahoney, J., Frame, L. (2023, April). Concrete Deterioration through Pyrrhotite containing Aggregates - Research Update. Presentation at the ACI spring convention, San Francisco, 2nd Apr 2023.
4. Wille, K., Chrysochoou, M., & Mahoney, J. (2022, November). Pyrrhotite in Concrete - Research & Field Testing in Connecticut & Massachusetts. Presentation for the symposium "The Science and Societal Impacts of Defective Concrete", Letterkenny, Ireland, 15th Nov 2022.
5. Xu, M., & Wille, K. (2022, October). Material Based Dynamic Increase Factor Models for UHPC under Compression and Tension. Presentation for the ACI fall convention.
6. Wille, K., Chrysochoou, M., & Mahoney, J. (2022, September). Risk assessment framework for concrete with pyrrhotite – Aggregate Characterization. Presentation for the seminar "State of Pyrrhotite Research in the US", organized by the National Stone, Sand & Gravel Association.
7. Wille, K., & Rai, B. (2022, August). Ultra-high performance concrete - Opportunities for a more sustainable and environmentally friendly infrastructure. Presentation at 4th Annual Transportation Infrastructure Durability Conference. University of Maine.
8. Wille, K., Chrysochoou, M., & Mahoney, J. (2022, March). Crumbling Concrete Foundations Due to Pyrrhotite in the US: Investigation and Research. Presentation for the European Parliament Multimedia, Webinar - The Impact on family homes of defective concrete products.
9. Wille, K., Chrysochoou, M., & Mahoney, J. (2022, March). Development of a Risk Assessment Framework for Crumbling Concrete Foundations. Presentation for the National Stone, Sand & Gravel Association.
10. Wille, K., Malla, R. B., & Rai, B. (2021, December). Development and Testing of High / Ultra-high Early Strength Concrete for Durable Bridge Components and Connections. Presentation for the 2021 Virtual Accelerated Bridge Construction Conference.
11. Rai, B., Wille, K., & Malla, R. B. (2021, August). Development of Non-Proprietary Ultra High Performance Concrete. Presentation for the 14th Am. Soc. of Nepalese Engineers (ASNEng) Conference, VIRTUAL Aug. 14-15, 2021 (<https://www.asnengr.org>), VIRTUAL.
12. Rai, B., & Wille, K. (2021, October). Development of UHPC for the New England Area. Presentation for the ACI fall convention.
13. Wille, K., Rai, B., & Malla, R. B. (2021, July). Project 2-5: Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) Annual Conference, web-conference.
14. Vandenberg, A., & Wille, K. (2021, April). Using Resonant Acoustic Mixing to Improve UHPC Workability. Presentation for the ACI spring convention.
15. Hendrix, D., & Wille, K. (2021, March). Nanosilica in UHPC: How to Improve Dispersion in the Mixed State. Presentation for the ACI spring convention.
16. Chrysochoou, M., Wille, K., & Mahoney, J. (2021, March). EVALUATION OF REACTION PROGRESS IN PYRRHOTITE-IMPACTED CONCRETE FOUNDATIONS USING A WD-XRF METHOD. Presentation for the Geological Society of America 56th Annual Meeting of the Northeastern Section.

17. Wille, K., Rai, B., & Malla, R. B. (2021, January). Project 2-5: Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) Workshop, web-conference.
18. Wille, K., Rai, B., & Malla, R. B. (2020, August). Project 2-5: Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) Annual Conference, web-conference.
19. Cruz Hernandez, Y., Chrysochoou, M., & Wille, K. (2020, June). Wavelength Dispersive X-ray Fluorescence Method to estimate the oxidation reaction progress of pyrrhotite in concrete. Presentation for the Goldschmidt 2020.
20. Rai, B., Wille, K., & Malla, R. B. (2020, April). Project 2-5: Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) web-conference.
21. Roy, M., & Wille, K. (2020, March). Finite Element Investigation of the Influence of Fiber Orientation on the Pullout Behavior of Rebar Embedded in Ultra-High Performance Concrete. Poster for the HiPerMat 2020, 5th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials.
22. Vandenberg, A., & Wille, K. (2020, March). The Effects of Resonant Acoustic Mixing on the Microstructure of UHPC. Poster for the HiPerMat 2020, 5th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials.
23. Wille, K., Rai, B., & Malla, R. B. (2020, January). Project 2-5: Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) web-conference.
24. Roy, M., & Wille, K. (2019, October). Effect of Fiber Reinforcement on the Tensile Behavior of Rebar Reinforced UHPC. Presentation for the ACI Fall Convention 2019.
25. Wille, K., Rai, B., & Malla, R. B. (2019, June). Project 2-5: Development and Testing of High / Ultra-High Early Strength Concrete for durable Bridge Components and Connections. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) Workshop, Portsmouth, NH; June 06-07, 2019 (Invited), Portsmouth, NH.
26. Kruszewski, D., Zaghi, A., McMullen, K., Zmetra, K., & Wille, K. (2019, March). Repair and Strengthening of Corroded Steel Girders Utilizing UHPC. Presentation for the ACI spring convention.
27. Wille, K., Chrysochoou, M., & Mahoney, J. (2019, March). Development, Verification and Validation of a Test Method for Pyrrhotite in Concrete. Presentation for the ACI spring convention. Committee 201-TG3
28. Wille, K., & Malla, R. B. (2018, November). Development of High / Ultra-High Early Strength Concrete for durable Accelerated Bridge Construction. Presentation for the US DOT Region 1 UTC – Transportation Infrastructure Durability Center (TIDC) Workshop, Portsmouth, NH; Nov. 08-09, 2018 (Invited), Portsmouth, NH.
29. Wille, K. (2018, September). Ultra-High Performance Concrete – Construction Material for Our Future Infrastructure. Presentation. Worcester Polytechnic Institute, Worcester, MA.
30. Hendrix, D., & Wille, K. (2017, December). Poster for the 2017 NSF Nanoscale Science and Engineering Grantees Conference, Arlington, VA.
31. Roy, M., & Wille, K. (2016, April). Calibrating Tensile Properties of UHPC with smeared fibers. Presentation for the ACI spring convention.
32. Zmetra, K., Zaghi, A., & Wille, K. (2015, November). Rehabilitation of Steel Bridge Girders with Corroded Ends using Ultra-High Performance Concrete. Presentation for the ACI fall convention.

33. Wille, K. (2015, October). Development of Non-Proprietary Ultra-high Performance (UHPC) Concrete for Use in the Highway Bridge Sector. Presentation. University of Massachusetts, Amherst, MA.
34. Wille, K. (2015, April). Nano-Engineering Ultra-High Performance Concrete (UHPC). Presentation for the ACI spring convention.
35. Wille, K., & Boisvert-Cotulio, C. (2015, April). Development of Cost-Effective Ultra-High Performance Concrete (UHPC) for Use in the Highway Bridge Sector. Presentation for the ACI spring convention.
36. Wille, K. (2015, April). Effects of De-Icer Corrosion on Infrastructure. Presentation for the Connecticut Academy of Science and Engineering.
37. Wille, K. (2014, October). Ultra-High Performance Concrete – Construction Material for Our Future Infrastructure?. Naval Research Laboratory, Washington, D.C.
38. Wille, K., & Xu, M. (2014, October). Strain Rate Dependency of UHPC under Direct Tensile Loading. Presentation for the ACI fall convention.
39. Wille, K. (2014, April). Ultra-High Performance Concrete – Construction Material for Our Future Infrastructure. NYU – Polytechnical School of Engineering, Brooklyn, NY.
40. Wille, K. (2014, February). Development of Non-Proprietary Ultra-high Performance (UHPC) Concrete for Use in the Highway Bridge Sector. PCI New England. Sturbridge, MA
41. Wille, K. (2013, May). Ultra-high performance concrete - Research at the APMC at UConn. Presentation for the Information exchange on UHPC at University of Michigan.
42. Wille, K. (2013, January). Ultra-high Performance Concrete and its Application in the Tunnel Industry. Presentation for the Visit of Arup (Tunnel Design Firm), NY.
43. Wille, K. (2012, October). Behavior of Ultra High-Performance-Fiber Reinforced Concrete under Direct Tensile Loading. Presentation for the ACI fall convention.
44. Wille, K. (2012, October). Enhanced sustainability with UHPC. Presentation for the ACI fall convention 2012.
45. Wille, K. (2012, May). APMC-Material Characterization of an Ultra High-Performance-Fibre Reinforced Concrete under Elevated Temperatures. Presentation for the Visit of Research group from City College New York.
46. Wille, K. (2012, April). APMC – Research on Ultra-High Performance Concrete. Presentation for the Seminar at City College of New York.
47. Wille, K. (2012, March). APMC – Forschung am Ultra-Hochleistungsbeton / Research on Ultra-high performance concrete. Presentation for the Seminar at University of Dresden.
48. Wille, K. (2012, February). APMC – Research on Ultra-High Performance Concrete. Presentation for the Seminar - Engineering UPGRADE at UConn.
49. Wille, K. (2011, April). Ultra-High Performance Fiber Reinforced Concrete Design – Characterization – Application. Presentation, Federal Highway Administration.
50. Wille, K. (2010, October). Strain rate dependent tensile behavior of Ultra-High Performance Fiber Reinforced Concrete. Presentation for the FALL 2010 SEMINAR SERIES, University of Rhode Island, Kingston, R.I.
51. Wille, K. (2010, May). Ultra High Performance Concrete: Material and Structural Design for Impact and Blast Attack. Presentation for the DHS Advanced Materials for Buildings and Infrastructure Active Blast Mitigation/ cIED Effects Project, Georgia Tech, Atlanta, Georgia.

**AWARDS**

- 2023 Collins Aerospace Professor in Engineering Innovation
- 2022 The American Society of Civil Engineers, conference paper award of excellence
- 2015 Elsevier Outstanding Reviewer Award for Cement and Concrete Composites
- 2015 Elsevier Outstanding Reviewer Award for Construction and Building Materials
- 2015 C.R. Klewin, Inc. Excellence in Teaching Award
- 2015 National Science Foundation CAREER award
- 2011 Junior Faculty Summer Fellowship
- 2010 Seven-week Postdoctoral Short-Course on College Teaching in Science and Engineering
- 2009 The German Academic Exchange Service postdoctoral scholarship – 7 months
- 2008 The German Academic Exchange Service postdoctoral scholarship – 17 months
- 2002 Award for outstanding academic achievement from the University of Leipzig

**PROFESSIONAL MEMBERSHIPS**

- American Society of Civil Engineers (ASCE)
- American Concrete Institute (ACI)

**PROFESSIONAL SERVICE**

- Chair of ACI 239 Sub-Committee F, Sustainability of Ultra High Performance Concrete (2022 – Present)
- Associate Editor for Journal of Materials in Civil Engineering since 2022
- Organizing member of the Second and Third International Interactive Symposium on UHPC 2019, 2023 (Chair of student competition)
- Co-Chair of the First International Interactive Symposium on Ultra-High Performance Concrete 2016
- NSF proposal panel review (May 2015, March 2022)
- Voting Member of ACI Committee 236D / 241, Material Science - Nanotechnology of Concrete (2014 – Present)
- Organizing and Chairing UHPC special sessions bi-annually at ACI Fall/Spring Conventions (2013 – present)
- Chair of UHPC sessions at Hipermat 2016, EMI 2013, Hipermat 2012, HPFRCC-6 2011
- Voting Member of ACI Committee 239, Ultra High Performance Concrete (2011 – Present)
- Voting Member of ACI Committee 544, Fiber Reinforced Concrete (2011 – Present)
- Member of ACI 544 Sub-Committee C, Testing of FRC & E, Mechanical Properties of FRC (2011 – Present)
- Advisor of the Concrete Canoe Team at UConn (2010 - Present)
- Reviewer for 20 different journals