



David Corr Ph.D., P.E.

DIRECTOR OF MATERIALS CONSULTING

David Corr serves as Director of Materials Consulting at CTLGroup and is one of the nation's leading experts related to structural performance, material characterization, and material development. Dr. Corr's knowledge focuses on both traditional and emerging building materials. Specifically, he has studied the durability of concrete, the rheology and fresh-state behavior of concrete, and fracture and cracking in cement-based materials.

Prior to joining CTLGroup, Dr. Corr was Clinical Professor and the Director of Graduate Studies in the Department of Civil & Environmental Engineering at Northwestern University. His most current research focused on nanotechnology of cement-based materials, large-scale additive manufacturing (3D printing), and cross-laminated timber. Dr. Corr has also conducted research in structural health monitoring, structural diagnostics, data analysis of structural performance, failure analysis and forensic engineering. He is a member of the American Concrete Institute (ACI), the past Chair of the Cements Division of the American Ceramic Society and is a licensed professional engineer in the state of Illinois.

Academic Credentials

Adjunct Professor, Civil and Environmental Engineering
Northwestern University
Evanston, IL

Ph.D. in Civil Engineering
University of California, Berkeley
Berkeley, CA 2001

M.S. in Civil Engineering
University of California, Berkeley
Berkeley, CA 1998

B.S. in Civil Engineering
University of Notre Dame,
South Bend, IN 1996

Licensure / Certification

Illinois Licensed Professional Engineer #62059436

Professional Affiliations

American Concrete Institute (ACI), member

American Ceramic Society (ACerS)

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Academic Experience

- Director of Graduate and Undergraduate Studies, Civil and Environmental Engineering, 9/2012 – 10/2022.
- Clinical Professor, Civil and Environmental Engineering, Northwestern University, 1/2018 - 10/2022.
- Charles Deering McCormick University Distinguished Clinical Professor, 9/2014-9/2015.
- Clinical Associate Professor, Civil and Environmental Engineering, Northwestern University, 9/2008 - 12/2017.
- Joint Appointment with Infrastructure Technology Institute, 9/2008 – 8/2013.
- Research Assistant Professor, Civil and Environmental Engineering, Northwestern University, 8/2003 - 12/2005.
- Postdoctoral Research Associate, Center for Advanced Cement Based Materials, Northwestern University, 3/2003 - 8/2003.
- Postdoctoral Fellow, Civil Engineering, Johns Hopkins University, 9/2001-8/2003.

Recent Publishing History

- Marerro Rosa RE, Cusatis G, Shah SP and Corr DJ (2022), "Characterization of Contact Creep Behavior on Carbon Nanoreinforced Cementitious Composites," in preparation
- Mendu K, Corr DJ and Shah SP (2022), "Influence of CNF on Portland Cement Hydration Products using FTIR-DRIFT, Raman Spectroscopy, and X-ray Diffraction Studies," in preparation
- Tong D, Brown SA, Landis E, Corr D and Cusatis G (2022), "Orthotropic Hygroscopic Behavior of Mass Timber: Theory and Computation," in preparation
- Mendu K, Guiney LM, Hersam MC, Shah SP and Corr DJ (2022), "Characterization and scalability of carbon nanofiber dispersions in aqueous solutions for cementitious nanocomposites," Cement and Concrete Composites, under review.
- Marrero Rosa RE, Corr DJ, Espinosa HD and Shah SP (2022), "Characterization of adhesion strength between carbon nanotubes and cementitious materials," Cement and Concrete Composites, under review.
- Mete F, Kosnik DE and Corr DJ (2022), "Long-term monitoring of bridge performance using structural health monitoring and weigh-in-motion data," in preparation.
- Mete F, Corr DJ, Wilbur M and Chen Y (2021), "Bridge response and heavy truck classification framework based on a two-step machine learning algorithm." Transportation Research Record, published online December 2, 2021.
- Tong D, Brown SA, Corr D and Cusatis G (2020), "Wood creep data collection and unbiased parameter identification of compliance functions," Holzforschung - Wood Research and Technology, in press, published online April 16, 2020.

- Li Z, Corr DJ, Han B and Shah SP (2020), "Investigating the effect of carbon nanotubes on early age hydration of cementitious composites with isothermal calorimetry and fourier transform infrared spectroscopy," *Cement and Concrete Composites* 107.
- D'Alessandro A, Corr DJ and Shah SP (2019), "Use of Tetraethyl Orthosilicate to improve durability of ferrocement," *ACI Materials Journal* 116(6), 159-168.
- Tao S, Gao Y, Corr DJ and Shah SP (2019), "FTIR study on early-age hydration of carbon nanotube-modified cement-based materials," *Advances in Cement Research* 31(8), 353-361.
- Xu J, Shen W, Corr DJ, and Shah SP (2019), "Effect of nanosilica on cement grain-CSH gel interfacial properties quantified by modulus mapping and nanoscratch," *Materials Research Express* 6(4).

Conference Proceedings

- Kosnik DE, Hopwood T and Corr DJ (2011), "Acoustic Emission Monitoring for Assessment of Steel Bridge Details, American Institute of Physics, July 2010, San Diego, CA.
- Corr D, McCann D and McDonald B (2008), "Lessons Learned from March Bridge Collapse," ASCE 5th Congress on Forensic Engineering, November 2009, Washington, DC.
- Landis E and Corr DJ (2006), "Three Dimensional Analysis of Air Void Systems in Concrete," 16th European Conference of Fracture, 2006, pp. 517-524.
- Corr DJ and Shah SP (2005), "Concrete Materials Science at the Nanoscale," Keynote Paper, Global Construction: Ultimate Concrete Opportunities, July 5-7, 2005, Scotland.
- Corr DJ and Graham-Brady LL (2003), "Simulation of Random Material Properties and Local Maximum Stresses and Strains in Concrete," Proceedings, 9th International Conference on Applications of Statistics and Probability in Civil Engineering, Millpress, Rotterdam.
- Corr DJ, Graham-Brady LL, Igusa T, Der Kiureghian A (2003), "Reliability of Service Life Predictions for Concrete under Sulfate Attack," Proceedings, 9th International Conference on Applications of Statistics and Probability in Civil Engineering, Millpress, Rotterdam.
- Corr DJ and Graham LL (2002), "Micromechanical Analysis of Concrete with Random Microstructure," Proceedings, 15th ASCE Engineering Mechanics Conference, June 2-5, 2002, Columbia University, New York.

Accomplishments

- Charles Deering McCormick University Distinguished Clinical Professor, Northwestern University. Awarded 2014.
- Certificate of Teaching Excellence, McCormick School of Engineering and Applied Science. Awarded 2011.
- Northwestern University Faculty Senate, representative of McCormick non-tenure track faculty, 2016-2018.
- American Ceramic Society (ACerS), member and President of Cements Division, 2018-2019.
- 7th Advances in Cement-Based Materials, July 2016 ACerS Cements Division conference, Program Chair
- 11th Advances in Cement-Based Materials, June 2020 ACerS Cements Division conference, Program Chair (cancelled due to COVID-19)