

# Fadi M. Althoey, Ph.D

Assistant Professor & Head

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## *EDUCATIONS*

- Drexel University (Philadelphia, PA, USA) Sep, 2015 – Jun, 2019  
Ph.D. Civil/Materials Engineering
- University of Dayton (Dayton, OH, USA) Aug, 2012 – May, 2015  
M.Sc Civil/Structural Engineering
- Umm Al-Qura University (Makkah, Saudi Arabia) Aug, 2007 – July, 2012  
B.Sc. Civil Engineering

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## *APPOINTMENTS*

- Parsons Corporation - Ministry of Housing Infrastructure project July 2011 – April 2012
- Teaching Assistant – Najran University April 2013 – Jun 2019
- Graduate Teaching Assistant, Dayton University, OH May 2014 – May 2015
- Research/Teaching Assistant and Mentor, Drexel University, PA Sep. 2016 – Jun 2019
- Assistant Prof - Najran University Dec 2019 – Present
- Community service coordinator, College of Engineering Jan 2020 – Present
- Head, Department of Civil Engineering Jun 2020 – Present

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## *SELECTED PEER-REVIEWED JOURNAL PAPERS*

1. **F. Althoey**, B. Wisner, A. Kontsos, and Y. Farnam (2018), Cementitious Materials Exposed to High Concentration of Sodium Chloride Solution: Formation of A Deleterious Chemical Phase Change, Construction and Building Materials Journal, Elsevier, Volume 167, pp. 543–552, doi: 10.1016/j.conbuildmat.2018.02.066.
2. Balapour, M., Joshaghani, A., and **Althoey, F.** (2018). Nano-SiO<sub>2</sub> contribution to mechanical, durability, fresh and microstructural characteristics of concrete: A review. Construction and Building Materials, 181, 27-41. doi.org/10.1016/j.conbuildmat.2018.05.266
3. **F. Althoey** and Y. Farnam (2019), The effect of using supplementary cementitious materials on damage development due to the formation of a chemical phase change in cementitious materials exposed to sodium chloride, Construction and Building Materials Journal, Elsevier, Volume 210, pp. 685-695, doi: 10.1016/j.conbuildmat.2019.03.230.
4. M. Ksara, R. Newkirk, S.K. Langroodi, **F. Althoey**, C. Sales, C. Schauer, and Y. Farnam (2019) Microbial Damage Mitigation Strategy in Cementitious Materials Exposed to Calcium Chloride Deicing Salts, Construction and Building Materials Journal, Elsevier, Volume 195, pp. 1-9, doi: 10.1016/j.conbuildmat.2018.10.033.

5. **F. Althoey**, Y Farnam (2019) “Performance of Calcium Aluminate Cementitious Materials in the Presence of Sodium Chloride” the ASCE Journal of Materials in Civil Engineering ([https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003365](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003365))
6. **Althoey, F.**, Stutzman, P., Steiger, M., & Farnam, Y. (2021). Thermo-chemo-mechanical understanding of damage development in porous cementitious materials exposed to sodium chloride under thermal cycling. *Cement and Concrete Research*, 147, 106497.
7. **F. Althoey**, M Balapour, Y Farnam (2020) Reducing Detrimental Sulfate-based Phase Formation in Concrete Exposed to Sodium Chloride Using Supplementary Cementitious Material, (under review).
8. **F. Althoey** and Md Hosen. Physical and Mechanical Characteristics of Sustainable Concrete Comprising Industrial Waste Materials as a Replacement of Conventional Aggregate. *Sustainability* 2021, 13, 4306. <https://doi.org/10.3390/su13084306>
9. **Althoey, F.** (2021). Compressive strength reduction of cement pastes exposed to sodium chloride solutions: Secondary ettringite formation. *Construction and Building Materials*, 299, 123965. <https://doi.org/10.1016/j.conbuildmat.2021.123965>
10. **F. Althoey**, El-Aal, A.K.A., Shoukry, H. et al. Performance of Cement Mortars Containing Clay Exposed to High Temperature. *Arab J Sci Eng* (2021). <https://doi.org/10.1007/s13369-021-05583-x>
11. Hosen, M. A.; **Althoey, F.**; Jumaat, M.Z.; Alengaram, J.; Sulong, R. Flexural Performance of RC Beams Strengthened with Externally-Side Bonded Reinforcement (E-SBR) Technique Using CFRP Composites. *Materials* 2021, 14, 2809. <https://doi.org/10.3390/ma14112809>
12. Elias A and **Althoey, F.**; A simplified Stress Analysis of Functionally Graded Beams and Optimization of Material Functions. *Materials* 2021 (**accepted**)
13. Hosen, M. A.; **Althoey, F** (2021) Investigation of Structural Characteristics of Palm Oil Clinker Based High-Strength Lightweight Concrete Comprising Steel Fibers (under review).

### ***SELECTED CONFERENCE PAPERS AND PRESENTATIONS***

1. **F. Althoey**, Y. Farnam (2017), An Advanced Understanding of the Source of the Chemical Damage in Concrete Pavement Exposed to Sodium Chloride Deicing Salt, in: 11th University Transportation Centers Spotlight Conference, Rebuilding and Retrofitting the Transportation Infrastructure, September 26-27, 2017, Washington, DC.
2. **F. Althoey**, and Y. Farnam (2019), Reducing Damage Due to Chemical Reactions in Concrete Exposed to Sodium Chloride: Quantification of a Deleterious Chemical Phase Change Formation, in: 2019 Tran-SET Conference, San Antonio (TX), April 2019.
3. **F. Althoey**, and Y. Farnam (2019), Damage Development in Cementitious Materials Due to Chemical Phase Change Formation in the Presence of NaCl: The Effect of Using Supplementary Cementitious Materials, Penn Concrete Conference, Harrisburg (PA)
4. **F. Althoey**, and Y. Farnam (2018) The Effect of Temperature Variations on the Chemical Stability of Cementitious Materials Exposed to NaCl Solution, in: 9th Advances in

Cement-Based Materials Conference (Cements 2018), ACerS, June 11-12, 2018, Pennsylvania State University, State College, PA.

5. M. Ksara, et al and **F. Althoey** (2018) Can Microbes Be Used to Mitigate Damage in Concrete due to Calcium Oxychloride Formation? in: National Collegiate Research Conference, NCRC 2018, January 18-20, 2018, Harvard University, Cambridge, MA.
6. **F Althoey** and Y Farnam (2020) Chemical Stability of Cementitious Materials Exposed to Thermal cycling and NaCl Solution, the 74th RILEM Week and 40th Cement & Concrete Science Conference, University of Sheffield, UK.
7. **F Althoey** and Y Farnam (2020) Chemical Stability of Cementitious Materials Exposed to Thermal cycling and NaCl Solution, the 74th RILEM Week and 40th Cement & Concrete Science Conference, University of Sheffield, UK
8. **F Althoey** and Y Farnam, Durability Performance of Calcium Aluminate Cement Pastes Exposed to Sodium Chloride Solution, ICCIMC 2020: 14. International Conference on Civil Infrastructure Materials and Construction June in Rome, Italy

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### ***OUTREACH ACTIVITIES***

- Participate on organizing K-12 STEM Scholar Workshop: Engineer Your City with Self-Healing Infrastructure, Summer 2017, Franklin Institute STEM Scholar and Elsevier, Drexel University, Philadelphia
- Organizing member of the college of engineering orientation day, Fall 2019, Najran University.
- Organizing of students Visit to Bin Harkil Factory For Granite & Marble with collaboration with Saudi Council of Engineers, Spring 2020, Najran University.
- Organizing member of the college of engineering orientation day, Fall 2020, Najran University.

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### ***COURSES TAUGHT***

- Construction Materials Laboratory, Drexel University, USA
- Structural Analysis I, Drexel University, USA
- Advanced Concrete Technology, Drexel University, USA
- Hydrology, Drexel University, USA
- Construction Equipment and Methods, Najran University
- Reinforced Concrete II, Najran University
- Properties and Testing of Materials, Najran University
- Graduation Project I, Najran University
- Graduation Project II, Najran University

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### ***PROFESSIONAL MEMBERSHIP***

- Saudi Engineering Council (SEC)
- Member of American Concrete Institute (ACI)
- American Ceramic Society (ACerS)
- Acoustic Emission Working Group (AEWG)
- Transportation Research Board (TRB)
- American Society of Civil Engineering (ASCE)
- American Society of Engineering Education (ASEE)
- American Society for Testing and Materials (ASTM International)

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### **REVIEWER OF PROFESSIONAL JOURNALS**

- Journal of Cement and Concrete Composite (Elsevier)
- Journal of Cement and Concrete Research (Elsevier)
- Journal of Construction and Building Materials (Elsevier)
- Journal of Materials and Structures (Springer)
- Advances in Civil Engineering Materials (ASTM International)
- Journal of Materials in Civil Engineering (ASCE)
- Journal of Nondestructive Evaluation (Springer)
- American Concrete Institute (ACI) Journals and Special Publications
- International Journal of Impact Engineering (Elsevier)
- Journal of Structural Integrity and Maintenance (Taylor and Francis)

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### **SELECTED PROFESSIONAL TRAINING/Workshops**

- 3<sup>rd</sup> NIST Workshop on Cementitious Materials Characterization (July 2018), National Institute of Standards and Technology (NIST), Gaithersburg, MD.
- PCA Professor's Training: Teaching Materials, Structures, and Pavements (July 2017), Portland Cement Association (PCA), Skokie, IL.
- Non-Destructive Testing and Advanced Methods for Evaluation of Concrete (May 2017), Germann Instruments, Evanston, IL.
- Testing and Instrumentation for Fresh Concrete, Papworths Construction Testing Equipment (PCTE) (September 2018)
- Differential Scanning Calorimetry (DSC) Theory & Applications Course, November (2017) New Castle, Delaware, TA Instrument
- RILEM Webinar: Thermodynamic modelling: a tool to understand hydrated cements, (February 2021).

- Concrete in Sulfate Environments: When Type V Cement is not a Viable Option, Continuing Education Live Webinar (CTL Group) (May, 2020).
- RILEM Webinar: Digital concrete: Dream or reality? New green or ecological monster? (July , 2021)