Curriculum Vita of Yunping Xi, Ph.D.

Professor
Civil, Environmental, and Architectural Engineering
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Education

Ph.D. in Structural Engineering, Northwestern University, Evanston, IL. (1991)
M.S. in Structural Engineering, Central Research Inst. of Building and Construction, Beijing, China (1985)
B.S. in Civil Engineering, Beijing Institute of Civil Engineering and Architecture, Beijing, China (1982)

Employment History

2005 – Present	Professor, University of Colorado at Boulder
2000 – 2005	Associate professor, University of Colorado at Boulder
1997 – 2000	Assistant professor, University of Colorado at Boulder
1993 – 1996	Assistant professor, Drexel University
1991 – 1993	Research Scientist, Northwestern University
1987 – 1988	Visiting Scholar, Northwestern University
1985 – 1987	Structural engineer, Beijing Central Research Inst. of Building and Construction.
1982 – 1983	Structural engineer, Beijing Design Institute of Building and Construction.

Research

Research interests and fundings

(1) Theoretical analysis and experimental study on long term durability of cementitious materials and reinforced concrete structures, including creep, shrinkage, fracture, freeze/thaw, and alkali-silica reaction of concrete; high temperature damage and radiation effect on concrete; chemical and moisture transport in concrete; and chloride-induced corrosion of steel in concrete.

(2) Monitoring and simulation of long-term performance of reinforced concrete and steel structures. Development of simulation models for long-term deterioration processes in reinforced concrete structures, installing sensor network on concrete structures, and integrating simulation models and sensor network for utilization of monitoring data to calibrate model parameters in real time.

(3) Evaluation of existing nuclear power plant structures: containment structures, bioshieldings, and dry casks. Leakage repair of wellbores in oil and gas industry, and CO2 underground storage formation. Performance evaluation of protection systems for highway bridge decks: sealers, thin-bonded overlays, waterproof membranes, and cathodic protection systems.

(4) Development of sustainable construction materials for the earth and space construction. Applications of special additives in concrete, such as carbon nanotubes, optical fibers to make translucent concrete, forming agents for lightweight concrete, and phase change materials for high insulation concrete. Develop lunar construction materials. Optimization of concrete mix designs. Reutilization of various solid wastes in concrete such as fly ash, waste glass, waste tires, and recycled concrete.

Since 1993, Dr. Xi has participated more than 100 sponsored projects as PI or co-PI. The total funding is about $20 million dollars as PI and co-PI.

Teaching

- Construction Materials (Undergraduate seniors)
- Mechanics of materials I (Undergraduate)
- Mechanics of materials II (Undergraduate)
- Statics (Undergraduate)
- Concrete materials (Graduate)
- Construction materials (Graduate)
- Material Science (Undergraduate)
- Advanced mechanics of materials I (Graduate)
- Advanced mechanics of materials II (Graduate)
- Stability of structures (Graduate)
- Infrastructure rehabilitation (Undergraduate senior and graduate)
- Advanced topics in reinforced concrete structure design (Graduate)
- Senior design in Civil Engineering (undergraduate)
- Senior design in Architectural Engineering (undergraduate)

Journal citations

Google scholar citations:	6385	h-index: 39	i10-index 100
Google scholar citations since 2019:	2475	h-index: 28	i10-index 56

Journal Articles (Peer-Reviewed)

1. Dehwah, D., and Xi, Y. (2024) "Theoretical model for the coupling effect of moisture transport on chloride penetration in concrete", *Cement and Concrete Research*, 177, 107431, https://doi.org/10.1016/j.cemconres.2024.107431.

2. Piyaphipat, S., Puangpaingam, B., Musiket, K., and Xi. Y. (2023) "Computational Viscoelastic Modeling of Strain Rate Effect on Recycled Aggregate Concrete", *Computers and Concrete*, 32(4), 383-392, https://doi.org/10.12989/cac.2023.32.4.383.

3. Dehwah, O., Li, L., Abdelrahman, M., and Xi, Y. (2023) "Numerical Modeling of Nanoparticle Injection and Ionic Removal for Cementitious Materials", *Journal of Engineering Mechanics, ASCE*, 149(12): 04023098; DOI: 10.1061/JENMDT.EMENG-7030.

4. Li, L., Zhang, Y., Mija, H., Xi, Y. (2022) "Experimental Study on Nanoparticle Injection by Using a Lab-Scale Wellbore System", *Cement and Concrete Composite*, 127, 104409, doi.org/10.1016/j.cemconcomp.2022.104409.

5. Li, L., Hubler, M., Abdelrahman, M., and Xi, Y. (2021) "Numerical Modeling of the Injection of Nanoparticles in Saturated Cementitious Materials by Using Electromigration Method". *J. of Eng. Mech.*, ASCE, 147(9), https://doi.org/10.1061/(ASCE)EM.1943-7889.0001954.

6. Wang, Y., Bai, Y., and Xi, Y. (2021) "Analytical solutions of moisture-chloride ion coupled transport in unsaturated concrete", *Journal of the American Ceramic Society*, 104(11), 5883-5897, https://doi.org/10.1111/jace.17973.

7. Li, L., Zhang, Y., Hubler, M., and Xi, Y. (2021) "Experimental Study on Nanoparticle Injection Technology for Remediating Leaks of CO2 Storage Formation", *Journal of Petroleum Science and Engineering*, https://doi.org/10.1016/j.petrol.2021.108829.

8. Jing, Y., and Xi, Y. (2021) "Modeling long-term distribution of fast and thermal neutron fluence in degraded concrete biological shielding walls", *Construction and Building Materials,* https://doi.org/10.1016/j.conbuildmat.2021.123379.

9. Damrongwiriyanupap, N., Sae-Long, W., Limkatanyu, S., and Xi, Y. (2021) "Influence of Associated Cathions on Chloride Ingress into Concrete Structures", *Engineering Journal*, 25(3), DOI:10.4186/ej.2021.25.3.51.

10. Kim, R.H., Kim, T.S., Im, S.H., and Xi, Y. (2021) "Hysteretic behavior comparison of austenitic and lean duplex stainless steel square hollow section members under cyclic axial loading", *Engineering Structures*, https://doi.org/10.1016/j.engstruct.2021.112227.

11. Frishcosy, C., Wang, Y., and Xi, Y. (2021) "A Novel Approach to Estimate Fuel Energy from Urban Areas", *Energy & Buildings*, doi: https://doi.org/10.1016/j.enbuild.2020.110609.

12. Li, L., Hubler, M., and Xi, Y. (2020) "Theoretical Modelling on Chemical Composition and Mechanical Properties of Well Cement under Carbonation Reactions", *Journal of Cleaner Production*, 276, 124270, https://doi.org/10.1016/j.jclepro.2020.124270.

13. Zhang, Y., Li, L., Xi, Y., and Hubler, M. (2020) "Experimental and Theoretical Study of the Restrained Shrinkage Cracking of Early Age Well Cement", *Construction & Building Materials*, 262(30), https://doi.org/10.1016/j.conbuildmat.2020.120368.

14. Bai, Y., Wang, Y., and Xi, Y. (2020) "Modeling the Effect of Temperature Gradient on Moisture and Ionic Transport in Concrete", *Cement and Concrete Composites*, doi.org/10.1016/j.cemconccomp.2019.10345.

15. Li, L., Hubler, M., and Xi, Y. (2020) "Modelling the Corrosion of Steel Casing and the Damage of Well Cement in a Borehole System", *Construction and Building Materials*, https://doi.org/10.1016/j.conbuildmat.2020.119701.

16. Na, O., and Xi, Y. (2019) "Multi-species Transport in Non-saturated Concrete Structures – A Parallel Finite Element Model", *Materials*, 12, 2764; doi:10.3390/ma12172764.

17. Hamidane, H., Ababneh, A., Messabhia, A., and Xi, Y. (2019) "Modeling of Chloride Penetration in Concrete Structures under Freeze Thaw Cycles", *International Journal of Building Pathology and Adaptation*, DOI 10.1108/IJBPA-04-2019-0040.

18. Damien, D., Wang, Y., and Xi, Y. (2019) "Prediction of Modulus of Elasticity of Cementitious Materials Based on Multiphase and Multiscale Micromechanics Theory", *J. of Eng. Mech.*, ASCE, 145(10): 04019074, DOI: 10.1061/(ASCE)EM.1943-7889.0001650.

19. Shahlaa Al Wakeel, Mija Hubler, Jiri Nemecek, Linfei Li, Yunping Xi (2019) "The effect of introducing nanoparticles on the fracture toughness of well cement", *International Journal of Greenhouse Gas Control*, doi.org/10.1016/j.ijggc.2019.03.009, 84, 147-153.

20. Jing, Y., and Xi, Y. (2019) "Long-term Neutron Radiation Levels in Distressed Concrete Biological Shielding Walls", *Journal of Hazardous Materials*, 363, 376-384.

21. Abdelrahman, M., and Xi, Y. (2018) "The Effect of w/c Ratio and Aggregate Volume Fraction on Chloride Penetration in Nonsaturated Concrete", *Construction and Building Materials*, 191, 260-269.

22. Jiang, Z., Xi, Y., Gu, X., Huang, Q., Zhang, W. (2018) "Modelling of Water Vapour Sorption Hysteresis of Cementitious Materials based on Pore Size Distribition", *Cement and Concrete Research*, 115, 8-19.

23. Wang, Y., Damien, D., and Xi, Y. (2018) "Micro- and meso-mechanical modelling of effect of freezing on modulus of elasticity of concrete", *Engineering Fracture Mechanics*, 200, 401-417.

24. Lee, J.S., Sheesley, E., Jing, Y., Xi, Y., and Willam, K. (2018) "The Effects of High Temperature on Bond Strength between Concrete and Rebars with and without Epoxy Coating", *Construction and Building Materials*, 177, 230-236.

25. Nemecek, J., Li, L., and Xi, Y. (2017) "Electrokinetic Nanoparticle Injection for Remediating Leaks in Oil Well Cement", *Construction and Building Materials*, 156, 63-72.

26. Kurtis, K., Xi, Y., Glinicki, M., Provis, J., Giannini, E., and Fu, T. (2017) "Can We Design Concrete to Survive Nuclear Environments?" *Concrete International*, Nov., 53-59.

27. Wang, Y., and Xi, Y. (2017) "The Effect of Temperature on Moisture Transport in Concrete", *Materials*, 10, 926, doi:10.3390/ma10080926.

28. Xia, J., Xi, Y., and Jin, W. (2017) "Temperature Dependent Coefficient of Thermal Expansion of Concrete in Freezing Process", *J. of Eng. Mech.*, ASCE, DOI: 10.1061/(ASCE)EM.1943-7889.0001256.

29. Musiket, K., Vernerey, F., and Xi, Y. (2017) "Numeral Modeling of Fracture Failure of Recycled Aggregate Concrete Beams under High Loading Rates", *International Journal of Fracture*, doi:10.1007/s10704-016-0145-3.

30. Jiang, Z., Xi, Y., Gu, X., Huang, Q., and Zhang, W. (2017) "Mesoscopic Prediction of Cement Mortar Diffusivity by Analytical and Numerical Methods", *J. of Materials for Civil Engineering, ASCE*, 29(4), DOI: 10.1061/(ASCE)MT.1943-5533.0001805.

31. Jing, Y., and Xi, Y. (2017) "Theoretical Modeling of the Effects of Neutron Irradiation on Properties of Concrete", *J. Eng. Mech.*, ASCE, 143(12): 04017137, 1-14.

32. Isteita, M.H., and Xi, Y. (2017) "The Effect of Temperature Variation on Chloride Penetration in Concrete ", *Construction and Building Materials*, 156, 73–82.

33. Na, O., Cai, X.C., and Xi, Y. (2017) "Corrosion Prediction with Parallel Finite Element Modeling for Coupled Hygro-Chemo Transport into Concrete under Chloride-Rich Environment", *Materials*, *10*(4), 350; doi:10.3390/ma10040350.

34. Jiang, Z., Huang, Q.H., Xi, Y., Gu, X.L., Zhang, W.P. (2016) "Experimental Study of Diffusivity of Interfacial Transition Zone between Cement Paste and Aggregate", *J. of Materials for Civil Engineering, ASCE*, 28(10): 04016109; DOI: 10.1061/(ASCE)MT.1943-5533.0001637.

35. Homan, L., Ababneh, A., and Xi, Y. (2016) “The Effect of Moisture Transport on Chloride Penetration in Concrete”, *Construction and Building Materials*, 125, 1189-1195.

36. Na, O., and Xi, Y. (2016) “Mechanical and Durability Properties of Portland Cement Insulation Mortar with Rubber Powder from Waste Tires”, *Journal of Material Cycles and Waste Management*, DOI 10.1007/s10163-016-0475-2.

37. Na, O., Ou, E., Xi, Y., and Saouma, V. (2016) “The Effects of Alkali-Silica Reaction on Mechanical Properties of Concrete with Three Different Types of Reactive Aggregates”, *Structural Concrete*, DOI: 10.1002/suco.201400062.

38. Musiket, K., Rosendahl, M., and Xi, Y. (2016) “Fracture of Recycled Aggregate Concrete under High Loading Rates”, *J. of Material in Civil Eng., ASCE*, 10.1061/(ASCE)MT.1943-5533.0001513 , 04016018.

39. Zhang, W.P., Tong, F., Gu, X.L., Xi, Y. (2015) “Study on Moisture Transport in Concrete in Atmospheric Environment”, *Computers and Concrete*, 16(5), 775-793.

40. Zhang, W.P., Min, H.G., Gu, X.L., Xi, Y., Xing. Y.S. (2015) “Mesoscale Model for Thermal Conductivity of Concrete”, *Construction and Building Materials*, 98, 8-16.

41. Bai, Y., Harajli, A., Xi, Y. (2015) “Analytical Solutions of Ionic Diffusion and Heat Conduction In Multi-Layered Porous Media”, *Journal of Applied Mathematics*, Vol. 2015, Article ID 208914, 11 pages, doi:10.1155/2015/208914.

42. Damrongwiriyanupap, N., Limkatanyu, S., and Xi, Y. (2015) "A Thermo-Hygro coupled Model for Chloride Penetration in Concrete Structures", *Advances in Materials Science and Engineering*, vol. 2015, Article ID 682940, 10 pages, doi:10.1155/2015/682940.

43. Damrongwiriyanupap, N., Li, L., and Xi, Y. (2014) “Temperature Effect on Multi-Ionic Species Diffusion in Saturated Concrete”, *Computers and Concrete*, 13(2), 149-171.

44. Nemecek, J., and Xi, Y. (2014) “Nanoparticle Injection into Concrete Using Electromigration”, *Advanced Materials Research*, Vol. 1054, 6-10.

45. Wang, X., Rhee, I., Wang, Y., and Xi, Y. (2014) "Compressive Strength, Chloride Permeability, and Freeze-Thaw Resistance of MWNT Concretes under Different Chemical Treatments", *The Scientific World Journal*, Vol. 2014, Article ID 572102, 8 pages, doi:10.1155/2014/572102.

46. Eskandari-Ghadi, M., Xi, Y., and Sture, S. (2014) “Cross-Property Relations Between Mechanical and Transport Properties of Composite Materials”, Technical note in *J. of Engineering Mechanics. ASCE*, 140(7), 06014006, DOI: 10.1061/(ASCE)EM.1943-7889.0000740.

47. Liang, Y., Ye, Z., Vernerey, F., and Xi, Y. (2013). "Development of Processing Methods to Improve Strength of Concrete with 100% Recycled Coarse Aggregate." *J. Mater. Civ. Eng.*, ASCE, DOI: 10.1061/(ASCE)MT.1943-5533.0000909, 04014163.

48. Meshgin, P., and Xi, Y. (2013) “Multi-scale Composite Models for Effective Thermal Conductivity of PCM-Concrete”, *Construction and Building Materials*, 48, 371-378.

49. Eskandari-Ghadi, M., Zhang, W.P., Xi, Y., and Sture, S. (2013) “Modelling of Moisture Diffusivity of Concrete at Low Temperatures”, *J. of Engineering Mechanics, ASCE*, 139(7), 903-915.

50. Kim, H.G., Lee, J.S., Cho, B.H., Kim, H.Y., and Xi, Y. (2013) "An Experimental Study on Fire Resistance of Medical Modular Block", *International Journal of Steel and Composite Structures*, 15(1), 103-130.

51. Damrongwiriyanupap, N., Li, L.Y., and Xi, Y. (2013) "Coupled Diffusion of Multi-Component Chemicals in Non-Saturated Concrete", *Computers and Concrete,* 11(3), 201-222.

52. Meshgin, P., Li, Y., and Xi, Y. (2012) "Utilization of Phase Change Materials and Rubber Particles to Improve Thermal and Mechanical Properties of Mortar", *Construction & Building Materials*, 28, 713-721.

53. Meshgin, P., and Xi, Y. (2012) "The Effects of Phase Change Materials on Properties of Concrete", *ACI Material J.*, 109(1), 71-80.

54. Damrongwiriyanupap, N., Li, L.Y., and Xi, Y. (2011) "Coupled Diffusion of Chloride and Other Ions in Saturated Concrete", *Journal of Frontiers of Architecture and Civil Engineering in China*, 5(3), 267–277.

55. Damrongwiriyanupap, N., Liang, Y.C., Xi, Y. (2011) "Diffusion of Multi-Ionic Species in Recycled Aggregate Concrete", *Key Engineering Materials,* 477, 56-64.

56. Li, L.Y., Damrongwiriyanupap, N., and Xi, Y. (2011) "A Probabilistic Prediction Model for the Corrosion Initiation Time of Steel Reinforcement in Concrete Structures", *International Journal of Modelling, Identification and Control*, 14(1/2), 112-120.

57. Li, Y., Yan, Q., Xi, Y., and Meshgin, P. (2011) "Properties of Premixed Rubberized Insulation Mortar", *New Building Materials*, 2, 43-45 (in Chinese).

58. Apipattanavis, S., Molenaar, K.R., Rajagopalan, B., Xi, Y., Sabol, K.K., Blackard, B. Patil, S. (2010) "An Integrated Framework for Quantifying and Predicting Weather Related Highway Construction Delays, *Journal of Construction Engineering and Management*, ASCE, Nov., 1160-1168.

59. Lee, J.S., Xi, Y., Willam, K., and Jung, Y. (2009) "A Multiscale Model for Modulus of Elasticity of Concrete at High Temperatures", *Cement and Concrete Research,* 39, 754–762.

60. Lee, J.S., Xi, Y., and Willam, K. (2008) "Properties of Concrete after High Temperature Heating and Cooling", *J. of Materials, ACI*, July-Aug. 105(4), 334-341.

61. Suwito, A., and Xi, Y. (2008) "The Effect of Chloride-Induced Steel Corrosion on Service Life of Reinforced Concrete Structures", *Structure & Infrastructure Engineering*, 4(3), June 2008, 177 – 192.

62. Koller, R., Chang, S.Y., and Xi, Y. (2007) "Fiber Reinforced Polymer Bars under Freeze-Thaw Cycles and Different Loading Rates", *Journal of Composite Materials*, 41(1), 5-25.

63. Suwito, A., Ababneh, A., Xi, Y., and Willam, K. (2006) "The Coupling Effect of Drying Shrinkage and Moisture Diffusion in Concrete", *Computers & Concrete*, 3(2-3), 103-122.

64. Suwito, Cai, X.-C., and Xi, Y. (2006) "Parallel Finite Element Method for Coupled Chloride Penetration and Moisture Diffusion in Concrete", *International Journal of Numerical Analysis and Modeling*, 3(4), 481-503.

65. Xi, Y., Eskandari-Ghadi, M., Suwito, and Sture. S. (2006) "A Damage Theory Based on Composite Mechanics", *J. of Eng. Mech., ASCE,* 132(11), 1-10.

66. Li, Y., and Xi, Y. (2006) "Study on the Properties of Portland Cement Mortar and Concrete Containing Crumb Rubber Aggregate", *Concrete,* 200, 45-48 (in Chinese).

67. Li, Y., Jin, C., and Xi, Y. (2006) "The Properties of Sulfur Rubber Concrete (SRC)", *J. of Wuhan Univ. of Tech. (Mater. Sci. Ed.),* 21(1), 129-133.

68. Chang, K.K., Roh, Y.S., and Xi, Y. (2006) "A Fractal Fracture Model and Application to Concrete with Different Aggregate Sizes and Loading Rates", *Structural Engineering and Mechanics*, 23(2), 147-161.

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70. Xi, Y. and Nakhi, A. (2005) "Composite Damage Models for Diffusivity of Distressed Materials", *J. of Materials in Civil Engineering*, ASCE, May/June, 17(3), 286-295.

71. Willam, K., Rhee, I., and Xi, Y. (2005) "Thermal Degradation in Heterogeneous Concrete Materials", *J. of Materials in Civil Engineering*, ASCE, May/June, 17(3), 276-285.

72. Asiz, A., Zhang, W., and Xi, Y. (2003) "Analysis of Aging of Piezoelectric Crystal Resonators", *IEEE Transactions on Ultrasonic, Ferroelectric, and Frequency Control (IEEE-UFFC),* 50(12), 1647- 1655.

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74. Xie, Z.H., Wen, X., and Xi, Y. (2003) "ASR Potentials of Glass Aggregates in Water-Glass Activated Fly Ash and Portland Cement Mortars", *Journal of Materials in Civil Engineering*, ASCE, 15(1), 67-74.

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80. Xie, Z., and Xi, Y. (2001) "Hardening Mechanisms of An Alkaline Activated Class-F Fly Ash", *Cement and Concrete Research*, 31, 1245-1249.

81. Amparano, F.E., Xi, Y., and Roh, Y.S. (2000) “Experimental Study on the Effect of Aggregate Content on Fracture Behavior of Concrete”, *Engineering Fracture Mechanics*, 67, 65-84.

82. Xi, Y., Willam, K., and Frangopol, D. (2000) “Multiscale Modeling of Interactive Diffusion Processes of Concrete”, *Journal of Engineering Mechanics*, ASCE, 126(3), 258-265.

83. Roh, Y.S., and Xi, Y. (2000) “A General Formulation for Transition Probabilities of Markov Model and the Application to Fracture of Composite Materials”, *Probabilistic Engineering Mechanics*, 15(3), 241-250.

84. Meyer, C., and Xi, Y. (1999) “Use of Recycled Glass and Fly Ash for Precast Concrete”, *Journal of Materials in Civil Engineering*, ASCE, May, 11(2), 89-90.

85. Xi, Y., and Bazant, Z.P. (1999) “Modeling Chloride Penetration in Saturated Concrete”, *Journal of Materials in Civil Engineering*, ASCE, 11(1), 58-65.

86. Amparano, F.E., and Xi, Y. (1998) “Pumpability of Nonsand Concrete with Anti-Segregative Additives”, *ACI Materials Journal*, 95(6), 695-703.

87. Tennis, P., Jennings, H.M., and Xi, Y. (1997) "Mathematical Modeling of Cement Paste Microstructure by Mosaic Pattern, Part II - Application to Cement Paste", *Journal of Materials Research*, 12(7), 1741-1749.

88. Xi, Y., and Bazant, Z.P. (1997) “Random Growth of Crack with R-curve: Markov Process Model”, *Engineering Fracture Mechanics*, 57(6), 593-608.

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91. Xi, Y. (1996) "Analysis of Internal Structures of Composite Materials by Second Order Property of Mosaic Patterns", *Materials Characterization*, Jan., 11-25.

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94. Bazant, Z.P., and Xi, Y. (1995) "Continuous Retardation Spectrum for Solidification Theory of Concrete Creep", *Journal of Engineering Mechanics*, ASCE , 121(2), 281-288.

95. Xi, Y. (1995) "A Model for Moisture Capacities of Composite Materials - Formulation", *Computational Materials Science*, 4, 65-77.

96. Xi, Y. (1995) "A Model for Moisture Capacities of Composite Materials - Application to Concrete", *Computational Materials Science*, 4, 78-92.

97. Xi, Y., Bazant, Z.P., and Jennings, H.M. (1994) "Moisture Diffusion in Cementitious Materials: Adsorption Isotherm", *Journal of Advanced Cement-Based Materials*, 1, 248-257.

98. Xi, Y., Bazant, Z.P., and Jennings, H.M. (1994) "Moisture Diffusion in Cementitious Materials: Moisture Capacity and Diffusivity", *Journal of Advanced Cement-Based Materials*, 1, 258-266.

99. Bazant, Z.P., and Xi, Y. (1994) "Drying Creep of Concrete: Constitutive Model and New Experiments Separating its Mechanisms", *Materials and Structures* (RILEM), 27, 3-14.

100. Xi, Y., Bergstrom, T.B., and Jennings, H.M. (1994) "Image Intensity Matching Technique: Application to the Environmental Scanning Electron Microscope", *Computational Materials Science*, 2, 249-260.

101. Bazant, Z.P., Xi, Y., and Baweja, S. (1993) "Improved Prediction Model for Time Dependent Deformation of Concrete, Part VII: Short Form of BP-KX Model, Statistics and Extrapolation of Short-Time Data", *Materials and Construction*, (RILEM), 26, 567-574.

102. Bazant, Z.P., and Xi, Y. (1993) "Stochastic Drying and Creep Effects in Concrete Structures", *Journal of Structural Engineering*, ASCE, 119(1), 301-322.

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Book and Book Chapter

1. Li, Z.J., Leung, C., and Xi, Y. (2009) Structural Renovation in Concrete, Taylor & Francis, London, 356p.

2. Willam, K., Xi, Y., and Naus, D. (2013) “Concrete under High Temperature”, Chapter 26 of *Infrastructure systems for Nuclear Energy*, Editors: Thomas T. C. Hsu, Jui-Liang Lin, and Chiun-lin Wu, Publisher: Wiley.

Refereed Conference Papers

1. Ababneh, A., Hamidane, H., Wang, Y., Abdelrahman, M., and Xi, Y. (2020) “Assessment of the Coupled Transport-Degradation Model for Concrete using Smart Sensors”, *Procedia Manufacturing*, 44, 20–27.

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2. Xi, Y., Jing, Y., and Biwer, B. (2021) “Radiation Effects on Concrete, An Approach for Modeling Degradation of Concrete Properties”, RIL 2021-07, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, and ANL/EVS-20/18, 164p.

3. Biwer, B., Ma, D., Xi, Y., and Jing, Y. (2021) “Review of Radiation-Induced Concrete Degradation and Potential Implications for Structures Exposed to High Long-Term Radiation Levels in Nuclear Power Plants”, NUREG/CR-7280, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, and ANL/EVS-20/8, 267p.

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5. Xi, Y., Jing, Y., and Railsback, R. (2018) “Surface Chloride Levels in Colorado Structural Concrete”, Colorado DOT Report No. CDOT-2018-05, 49p.

6. Liang, Y.C., Gallaher, B., and Xi, Y. (2014) “Evaluation of Bridge Deck Sealers”, Colorado DOT Report No. CDOT-2014-6, 57p.

7. Willam, K., Xi, Y., and Naus, D. (2013) “A Review of the Effects of Radiation on Microstructure and Properties of Concrete Used in Nuclear Power Plants”, NUREG/CR-7171, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, and ORNL/TM-2013/263, 131p.

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9. Xi, Y., Meshgin, P., Na, O., and Li, Y. (2010) “Premixed Rubberized Insulation Mortar”, A Technical Report to CDPHE, 66p., http://www.cdphe.state.co.us/oeis/p2_program/atgfinalrpts.html.

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11. Willam, K., Xi, Y., Lee, K., and Kim, B. (2009) “Thermal Response of Reinforced Concrete Structures in Nuclear Power Plants”, University of Colorado at Boulder, SESM Report No. 02-2009: Report to Oak Ridge National Laboratory, 210p.

12. Xi, Y., Balaji, R., and Molenaar, K. (2008) "Quantifying Construction Delays Due to Weather", Research report FHWA-CFL/TD-07-001.

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20. Xi, Y., and Li, Y. (2004) "Materials, Testing Methods, and Construction Practices for Fast Concrete Deck Repair", Internal Report CU/SESM/XI-2004/001 University of Colorado at Boulder, and Report to Colorado DOT, 95p.

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22. Xi, Y., Shing, B., Abu-Hejleh, N., Asiz, A., Suwito, A., Xie, Z.H., Ababneh, A. (2003) "Assessment of the Cracking Problem in Newly Constructed Bridge Decks in Colorado", Colorado DOT Report No. CDOT-DTD-R-2003-3, 136p.

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24. Cusson, R., and Xi, Y. (2003) "The Behavior of Fiber-Reinforced Polymer Reinforcement in Low Temperature Environment Climates", Colorado DOT Report No. CDOT -DTD-R-2003-4, 107p.

25. Shing, B., and Xi, Y. (2003) Studies on the Use of High Performance Concrete and FRP Reinforcement for the I-225/Parker Road Bridge", Colorado DOT Report No. CDOT-DTD-R-2003-13, 86p.

26. Xi, Y., and Xie, Z.H. (2002) "Corrosion Effects of Magnesium Chloride and Sodium Chloride on Automobile Components", Colorado DOT Report No. CDOT-DTD-R-2002-04, 91p.

27. Zylstra, R., Shing, B., and Xi, Y. (2001) "Evaluation of PRP Prestressed Panels/Slabs for I-225/Parker Road Project", Colorado DOT Report No. CDOT-DTD-R-2001-14, 149p.

28. Xi, Y., Shing, B., and Xie, Z.H. (2001) "Development of Optimal Concrete Mix Designs for Bridge Decks", Colorado DOT Report No. CDOT-DTD-R-2001-11, 60p.

Awards and Recognitions

Eckel Award 2018. Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder.

Recipient of *2010 Faculty Fellowship* at University of Colorado at Boulder.

*Research development award 2004***.** Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder.

Young Researcher's award for academic year 1998-1999. Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder.

Faculty advisor for Drexel teams in American Concrete Institute (ACI) beam competition. In 1993, ***First prize*** for the highest ultimate load was awarded to the Drexel team. In 1994, ***First prize*** for the highest ultimate load was awarded to one of the Drexel teams. ***First prize*** for the best prediction was awarded to another Drexel team.

Professional Activities

Committee chairs and directors

- The administrator of Colorado Local Technical Assistance Program (sponsored by the U.S. Federal Highway Administration, Colorado Department of Transportation, and University of Colorado at Boulder) (1998-2019).
- The vice chair of Experimental Analysis and Instrumentation (EA&I) Committee, ASCE Engineering Mechanics Institute (EMI) (2012).
- The chair of Experimental Analysis and Instrumentation (EA&I) Committee, ASCE Engineering Mechanics Institute (EMI) (2013-2014).
- The past chair of Experimental Analysis and Instrumentation (EA&I) Committee, ASCE Engineering Mechanics Institute (EMI) (2015).
- The chair of the committee on Properties of Materials, ASCE Engineering Mechanics Institute (EMI), 2003-2007.

Services at University of Colorado at Boulder

- A member of First Level Review Committee of College of Engineering (2012 – 2015, 2022-2023).
- A co-director of The Center for Infrastructure, Energy, and Space Testing (CIEST) at CU-Boulder (2022-present).
- The coordinator of Structural Engineering and Structural Mechanics Group (2002-2003, 2022-2023).
- A member of Program & Students Committee, Dept. of CEAE at CU-Boulder (2021-present).
- The executive committee member of Dept. of Civil, Environmental, and Architectual Engineering representing Structural Engineering and Structural Mechanics (SESM) Group (2005 – 2011).
- A member of the Curriculum Committee of CEAE in 1999 and 2000.
- A member of the Facility Committee of CEAE in 2001-2003, 2011, 2018, 2019.
- The seminar organizer of Structural Engineering and Structural Mechanics Group in 1999 and 2000.
- A member of the search committee for the Structural Engineering and Structural Mechanics Group, 2008, 2009, 2011, 2012, 2013.

Associate editor, guest editor, and editorial board member of journals

- A member of Editorial Advisory Board of international journal *Magazine of Concrete Research* (June, 2013 – June, 2017).
- An associate editor and a member of Editorial Board of *Journal of Engineering Mechanics*, ASCE, 2003-2007.
- A past member of International Scientific Committee of FraMCoS.
- A past member of Advisory Board for International Association on Concrete Creep (IA-Concreep).
- A past member of Editorial Advisory Committee of an international journal "*Concrete Science and Engineering"* (RILEM, the journal was discontinued).
- A member of the Internal Oversight Board for the NSF NEES center at CU (up to 2009).
- An editor for the special issue of Journal of Materials for Civil Engineering (ASCE), dedicated to Model-Based Simulation on Durability of Materials and Structures (2005).

- An editor for the special issue of Journal of Engineering Mechanics (ASCE), dedicated to durability mechanics (March 2000).
- An editor for the special issue of Journal of *Concrete Science and Engineering* (RILEM), dedicated to durability mechanics (March 2002).
- An editor of the proceedings of 8th Faculty Enhancement Workshop of ACBM, July 15-18, 2001, Boulder, Colorado.

Member of professional committees and organizations, and NSF review panels

- A Member of ICIC (International Committee of Irradiated Concrete)
- A member of the committee of Creep and Shrinkage of Concrete, American Concrete Institute (ACI) 209.
- A member of the committee on experimental analysis and instrumentation, ASCE/Engineering Mechanics Institute (ASCE/EMI).
- Member of the committee on properties of materials, ASCE/Engineering Mechanics Institute (ASCE/EMI).
- A past member of the committee on poromechanics, ASCE/Engineering Mechanics Division.
- A past member of the committee 446 (Fracture Mechanics), American Concrete Institute.
- A past member of the committee TC107 (Creep and Shrinkage), International Union of Testing and Research Laboratories for Materials and Structures.
- A past member of the committee TC QFS (Size effect of quasibrittle fracture), International Union of Testing and Research Laboratories for Materials and Structures.
- A past member of the committee on Multi-Decade Creep and Shrinkage of Concrete: Material Model and Structural Analysis, RILEM, TC-MDC.
- A NSF review panelists for many review panels.