

BARZIN MOBASHER

Professor of Civil, Environmental, and Sustainable Engineering
School of Sustainable Engineering and the Built Environment
Arizona State University

EDUCATION

Ph.D. Northwestern University, Evanston, IL, 1990
M.S. Northeastern University, Boston, MA, 1985
B.S. University of Wisconsin-Platteville, Platteville, WI, *Summa Cum Laude*, 1983

ACADEMIC EXPERIENCE

2004- Present Arizona State University, Professor
1997- 2004 Arizona State University, Associate Professor
1991- 1997 Arizona State University, Assistant Professor
1986-1989 Northwestern University, Research Assistant
1983-1985 Northeastern University, Research and Teaching Assistant
1980-1983 University of Wisconsin-Platteville, Teaching Assistant

INDUSTRIAL EXPERIENCE

1989-1991 USG Corp. Research Center, Libertyville, IL., Member of Technical Staff
1985-1986 Federal Highway Administration, McLean, VA. Research Fellow

PROFESSIONAL REGISTRATION

P.E. Registered Professional Engineer in Arizona, License Number: 40230

BOOKS

Barzin Mobasher, *Mechanics of Fiber and Textile Reinforced Cement Composites*, CRC press, Release Date: Sept, 2011, 480 pp ISBN: 9781439806609.

Barzin Mobasher and Jan P. Skalny (Editors), *Transport Properties and Concrete Quality: Materials Science of Concrete*, Special Volume, January 2007, ISBN: 978-0-470-09733-5, Hardcover, 238 pages, Wiley.

MEMBERSHIP IN SCIENTIFIC AND PROFESSIONAL SOCIETIES

Fellow, American Concrete Institute
Member, American Ceramic Society
Member, American Society of Civil Engineers

Member, International Editorial Board, Computers and Concrete, an International Journal, Techno-Press, 2008

Chair, American Concrete Institute, Committee 544, Fiber Reinforced Concrete

REVIEWER

National Science Foundation, ACI Materials Journal, Journal of Advanced Cement Based Materials, Journal of Materials Research, Journal of Composites Engineering, Journal of American Society of Civil Engineers, Engineering Mechanics Division and Materials Division, Journal of Cement and Concrete Research, Transportation Research Board, Journal of American Ceramic Society.

AREAS OF TEACHING AND RESEARCH INTERESTS

Teaching: Solid mechanics, experimental stress analysis, reinforced concrete design, properties of concrete, structural steel design, structural analysis, engineering materials, mechanics of materials, composite materials.

Research: Constitutive modeling of quasi-brittle materials, fracture mechanics, non-destructive testing techniques, experimental stress analysis, biomechanics, brittle matrix composite materials, chemical, mechanical, and durability of concrete.

CONFERENCE AND SESSION ORGANIZER

- ASCE, Session Chair, Third Materials Engineering Conference, ASCE, 1994.
- MRS, Session Chair, Fall Meeting, 1996.
- American Ceramic Society, Session Chair, Cements Div., 1997
- American Ceramic Society, Session Chair, Cements Div., 1998
- American Ceramic Society, Symposium Co-sponsor, Cements Division, 1999
- American Ceramic Society, Program Chair, Cements Div., 1999
- American Ceramic Society, Program Chair, Cements Div., PAC-RIM Conf. Maui, 2001.
- American Concrete Institute, Program Committee, Annual convention Fall 2002
- ASU/ADOT Material-Pavement Conference, Organizing Committee, 2000-2002
- American Concrete Institute, Session organizer, Fall 2003, Boston, MA.
- ASCE-EMD, Session Organizer, Conf. July 2003.
- American Concrete Institute, Session organizer, Spring 2005, NY, NY.
- Transport Properties and Concrete Quality Workshop, Organizer and Chair, ASU, Oct 2005.
- Session Chair, *Textile Reinforced Concrete* session sponsored by the ACI Committees 544 and 549, ACI Spring Convention, New York, April 20, 2005.
- Session Chair, *Textile Reinforced Concrete (TRC) - German/International Experience* symposium sponsored by the ACI Committee 549, ACI 2005 Fall Convention, Kansas City, Missouri, Nov., 2005.
- Session Chair, 8th International Symposium on Brittle Matrix Composites (BMC8) in Warsaw, October 22-25, 2006.

- Session Chair, International Workshop: Microstructure and Micromechanics of Stone Based Infrastructure Materials, Virginia Tech, VA, October 5-6, 2006.
- Session Chair, HPRCC5 -High Performance Fiber Reinforced Cement Composites, Mainz, Germany, 2007.
- Session Chair, ACI 435/544 Fall 2007 Puerto Rico, ACI 549 Fabrication Technologies For Thin Cementitious Products.
- Session Chair, Deflection And Stiffness Issues In FRC And Thin Structural Elements ACI 435/544 Fall 2007 Puerto Rico.
- Session Chair, Annual Meeting of American Ceramics Society Cements Division, ACerS, TMS-2007 Sept. 2007.

SPONSORED PROJECTS

1. Evaluation of Processing Techniques for Manufacturing High-Performance Cement Based Composites, National Science Foundation, 1992-96, \$110,000.
2. Mechanical Testing and Design Optimization of Lightweight Steel Framing Systems, (with S.D. Rajan), Allied American, Inc., Phoenix, Az, 1994-97, \$207,000.
3. Predicting Structural Changes Due to Radial Keratotomy Using Finite Element Analysis, (with S. D. Rajan), Gary Hall Eye Surgery Institute, 1992-93, \$58,500
4. Application of Copper Slag in Concrete, Minerals Research and Recovery, Inc. Tucson, Az. 1992-95. \$29,000
5. Mechanical Properties of Base Isolation Systems, The Lorant Group, Phoenix, Az, 1993. \$2,050
6. Finite Element Modeling of Keratorefractive Surgeries, ASU Faculty Grant in Aid, 1993, \$5,800.
7. Mechanical Response of Seismic Clips, TEKTON Corp., Phoenix Arizona, 1994-1997, \$9,215.
8. Analysis of Radial Keratotomy Surgeries Using a Finite Element Model, Arizona State Research Institute, 1994, \$12,000.
9. Mechanical Response of Glass/Epoxy and Carbon/Epoxy Composites, SATCON Inc. Tucson, AZ, 1996-1997, \$9,750
10. Use of Alkali-Resistant Glass Fibers In Reinforcing Conventional Concrete Materials, CEMFIL Corporation, 2001. (B. Mobasher, P.I.) , \$16,800
11. Effect Of Flyash Composition On Its Reactivity And Strength Development In Concrete Materials, 2000 Salt River Project, (B. Mobasher, P.I.), \$ 22,000
12. An Integrated System For Design Of Carnioplatic Devices, 1999, Kleft Palate Foundation (B. Mobasher, P.I., Tim Littlefield), \$5,000.
13. FEM Simulation of Corneal Refractive Procedures for Laser Assisted In-Situ Keratomileusis (LASIK), 2002, ALCON, Inc. (B. Mobasher, P.I.), \$20,000.
14. Explicit Finite Element Analysis Modeling of Multi-Layer Composite Fabric for Gas Turbine Engines Containment Systems, 2001 (S.D. Rajan, PI, B. Mobasher Co PI) FAA AACE Grant \$487,000.
15. Characterization and Utilization Of Concrete With Flyash, Salt River Project , (B. Mobasher, P.I.), 2001, \$25,000.
16. Use of Flyash in Concrete, Salt River Project , (B. Mobasher, P.I.), 2002, \$25,000

17. Development of Algae-Resistant Cement Based Canal Surfacing Materials, B. Mobasher, PI, NSF Water Quality Center at ASU, \$ 17,800
18. Use Of Alkali-Resistant Glass Fibers In Reinforcing Conventional Concrete Materials, CEMFIL Corporation, 2003. (B. Mobasher, P.I.) , \$4,000
19. Mechanical Properties of Technical Fabrics used for Retrofitting Unreinforced Masonry Walls, Saint-Gobain Technical Fabrics, Canada, 2003, \$28,700
20. Laboratory Evaluation of ADOT's Ultra Thin Whitetopping PCC Test Sections - Sunland Gin Road, FNF Construction , 2003, \$25,000
21. Laboratory Evaluation of ADOT's Ultra Thin Whitetopping PCC Test Sections – Cottonwood AZ, FNF Construction , 2003, \$25,000.
22. Pultruded Fabric-Reinforced Cement Composites, 2003-2007, NSF, (B. Mobasher, PI), \$219,000
23. Pultrusion Technology for the Production of Fabric-Cement Composites, 2003, United States-Israel Bi-National Science Foundation, 2003-2006 (Alva Peled, PI, B. Mobasher, Co PI, \$60,000)
24. Development Of Reliable Modeling Methodologies For Fan Blade Out Containment Analysis, 2003-2006 (S.D. Rajan, PI 50%, B. Mobasher Co PI 50%) FAA-AACE Grant \$760,000.
25. Use of flyash in Concrete, Salt River Project, (B. Mobasher, P.I., 100%), 2004, \$32,000
26. Consulting Services for ADOT Transportation Product Evaluation Program, Western Technology Incorporated, 2003-2008, (B. Mobasher, PI, 100%), \$167,000
27. Physical and Mechanical Properties of Carbon Fiber Epoxy Composites, KPFF Consulting Engineers (B. Mobasher, PI, 100%, \$52,000)
28. Predicting Short Term and Long Term Ectasia in Corneas Subjected to Lasik Surgery, Vision Quest (B. Mobasher, S. D. Rajan, PI, 50%, \$55,000)
29. Long-range Testing of Flyash and Cement Products, Salt River Materials (B. Mobasher, PI, 100%, \$51,000)
30. Laboratory Evaluation of ADOT's Thin Whitetopping PCC Test Sections - I-40 Andy Devine TI, Arizona Department of Transportation (B. Mobasher, co-PI, 40%, \$40,000)
31. High-Strain Rate Testing of Fabrics Used in Engine Containment Systems, FAA-Federal Aviation Administration (B. Mobasher, co-PI, 50%, \$130,000), 2005-2008.
32. High Performance Alkali Resistant glass Reinforced Concrete Materials for Shrinkage Control: Design and Specification Challenge, B. Mobasher, PI, 100%, St. Gobain Specialty Fibers \$37,324
33. LS_DYNA Implemented Multi-Layer Fabric Material Model Development for Engine Fragment Mitigation, (S.D. Rajan, PI 50%, B. Mobasher Co PI 50%) FAA-AACE Grant, \$250,000
34. NSF-International: United States-Pakistan Workshop on Advanced Cement-Based Composites, NSF, B. Mobasher PI 100%, \$29,425.00
35. High flyash, fiber, and rubber reinforced concrete materials: structural efficiency, Salt River Project , (B. Mobasher, P.I., 100%), \$31,940
36. Dynamic Testing of Fuse Cutouts, Wynn and Wynn P.C., (B. Mobasher PI 100%) \$20,000.
37. Mobasher,B. P.I., Kaloush,K. E., Concrete Mixtures Design and Thermal Properties. Meccano (10/15/2009 - 5/15/2010).

38. Mobasher, B. P.I., Optimization of Early Strength Shotcrete for Rapid Shaft Sinking. Rio Tinto (10/29/2008 - 6/30/2009).
39. Mobasher, B. P.I., Borrer, C. M., Montgomery, D. C., Roy, D. M., "Economical Concrete Mix Designs Utilizing Blended Cements, Performance Based Specifications, and Rational Pay Factors, ADOT (7/8/2008 - 11/15/2010).
40. Mobasher, B. P.I. Materials Evaluation for ADOT Approved Products List. ADOT (7/1/2008 - 8/12/2010).
41. Mobasher, B., P.I. Physical and Mechanical Properties of Aerated Concrete Blocks. Navajo Flexcrete (1/15/2008 - 4/30/2010).
42. Mobasher, B., Pultruded Fabric-Reinforced Cement Composites. Us-Israel Binational Science Foundation (10/1/2007 - 9/30/2012).

JOURNAL PUBLICATIONS

- 1) Cohen, M. D., Mobasher, B., "Drying Shrinkage of Expansive Cements", *Journal of Materials Science*, 23, (1988) pp. 1976-1980. [\[download\]](#)
- 2) Shah, S. P., Ludirdja, D., Daniel J. I., Mobasher, B., "Toughness-Durability of Glass Fiber Reinforced Concrete Systems", *ACI Materials Journal*, Sept-Oct. 1988, pp. 352-360. Discussion, 85-M39, *ACI Materials Journal*, July-Aug. 1989, p 425. [\[download\]](#)
- 3) Mobasher, B., and Shah, S. P., "Test Parameters in Toughness Evaluation of Glass Fiber Reinforced Concrete Panels", *ACI Materials Journal*, Sept-Oct. 1989, pp. 448-458. [\[download\]](#)
- 4) Stang, H., Mobasher, B., Shah, S. P., "Quantitative Damage Characterization In Polypropylene Fiber Reinforced Concrete", *Cement and Concrete Research*, Vol. 20, No. 4, pp. 540-558, 1990. [\[download\]](#)
- 5) Mobasher, B., Stang, H., Shah, S. P., "Microcracking in Fiber Reinforced Concrete", *Cement and Concrete Research*, Vol. 20, No. 5, pp. 665-676, 1990. [\[download\]](#)
- 6) Mobasher, B., Castro-Montero, A., Shah, S. P., "A Study of Fracture in Fiber Reinforced Cement-Based Composites Using Laser Holographic Interferometry," *Experimental Mechanics*, Vol. 30, No.3, 1990, pp. 286-294. [\[download\]](#)
- 7) Ouyang, C. S., Mobasher, B., and Shah, S. P., "An R-Curve Approach for Fracture of Quasi-Brittle Materials", *Engineering Fracture Mechanics*, Vol. 37, No.4, pp. 901-913, 1990. [\[download\]](#)
- 8) Mobasher, B., Ouyang, C. S., and Shah, S. P., "Modeling of Fiber Toughening in Cementitious Composites using an R-Curve Approach", *International Journal of Fracture*, 50: 199-219, 1991. [\[download\]](#)

- 9) Li, Z., Mobasher, B., and Shah, S. P., "Characterization of Interfacial Properties in Fiber-Reinforced Cement Based Composites", *Journal of American Ceramic Society*, 74 (9) 2156-64, 1991. [\[download\]](#)
- 10) Cohen, M. D., Mobasher, B., "Effects of Sulfate and Expansive Clinker Contents on Expansion Time of Expansive Cement Paste", *Journal of Cement and Concrete Research*, 21, No. 1, pp. 147-157, 1991. [.\(PDF Format, 658K\)](#)
- 11) Hall G.W., Krischer C., Mobasher B., Rajan S.D., "The Construction Of Sutureless Cataract Incision And The Management Of Corneal Astigmatism," *Current Opinion In Ophthalmology* 4 (1): 33-38 Feb 1993.
- 12) Perez-Pena, M., Mobasher, B., "Mechanical Properties of Hybrid Fiber Reinforced Cementitious Composites," *Journal of Cement and Concrete Research*, Vol. 24, No. 6, pp 1121-1132, 1994. [\(PDF Format, 586K\)](#)
- 13) Mobasher, B. and Li, C. Y., "Mechanical Properties of Hybrid Cement Based Composites," *ACI Materials Journal*, Vol. 93, No.3, pp.284-293, 1996. [\[pdf format, 932k\]](#)
- 14) Mobasher, B., and, Li, C. Y., "Modeling of Stiffness Degradation of the Interfacial Zone During Fiber Debonding," *Journal of Composites Engineering*, Vol. 5, NO. 10-11, pp. 1349-1365, 1995. [\(PDF format, 10.5 MB\)](#)
- 15) Mobasher, B., and, Li, C. Y., "Effect of Interfacial Properties on the Crack Propagation in Cementitious Composites," *Journal of Advanced Cement Based Materials*, Vol. 4. No. 3, Nov. Dec. 1996, pp. 93-106. [.\(pdf format, 955k\)](#)
- 16) Gettu, R., Mobasher, B., Carmona, S., and Jansen, D., "Testing of Concrete Under Closed-Loop Control," *Invited Article, Journal of Advanced Cement Based Materials*, Vol. 3, No.2, March 1996, pp. 54-71. [\(pdf format, 1535K\)](#)
- 17) Shah, S. P., Li, Zongjin, and Mobasher B., "Reply to 'Comment on Characterization of interfacial properties in fiber reinforced cementitious composites'", *J. American Ceramic Society*, Vol. 76, No. 6, 1993, pp. 1617-1618.
- 18) Mobasher, B., Mamlouk, M., and Lin, H.M., "Evaluation Of Crack Propagation Properties of Asphalt Mixtures," *ASCE Journal of Transportation Engineering*, Sept-Oct. 1997, pp.405-413. [\(pdf format, 858 K\)](#)
- 19) Mobasher, B., Pivacek A., and Haupt, G. J. "Cement Based Cross-Ply Laminates," *Journal of Advanced Cement Based Materials*, 1997, 6, pp. 144-152. [\(pdf format, 752 K\)](#)
- 20) Pivacek A., and Mobasher, B., "A Filament Winding Technique for Manufacturing Cement Based Cross-Ply Laminates," *Innovations Forum, ASCE Journal of Materials Engineering*, May 1997, pp 55-58. [\(pdf format 278K\)](#)

- 21) Tixier, R., Devaguptapu, R., and Mobasher, B., "The Effect of Copper Slag on the Hydration and Mechanical Properties of Blended Cementitious Mixtures," *Journal of Cement and Concrete Research*, Vol. 27, No. 10., pp. 1569-1580, 1997. ([pdf format, 455k](#))
- 22) Mobasher, B., and Pivacek, A., "A Filament Winding Technique for Manufacturing Cement Based Cross-Ply Laminates," *Journal of Cement and Concrete Composites*, 20 (1998) 405-415. ([pdf format](#))
- 23) Li, C. Y., and Mobasher, B., "Finite Element Simulations of Toughening in Cement Based Composites," *Journal of Advanced Cement Based Materials*, 1998, 7, pp. 123-132. ([pdf format, 733k](#))
- 24) Ariño, A. M., and Mobasher, B. " Effect Of Copper Slag On The Strength, And Toughness Of Cementitious Mixtures" *ACI Materials Journal*, V 96, No. 1, Jan-Feb, 1999, pp.68-73. ([pdf format, 670K](#))
- 25) Mobasher, B., S-Y.Chen, C. Young and S. D. Rajan, " Cost-Based Design Of Residential Steel Roof Systems: A Case Study" *Structural Engineering and Mechanics* 8: (2) 165-180 Aug 1999.
- 26) Montesinos J., Gorur R. S., Mobasher B., Kingsbury D., "Brittle Fracture in Nonceramic Insulators Part I: Electrical Aspects of Microscopic Flaws in Glass Reinforced Plastic GRP Rods," *IEEE Transactions on Dielectrics and Electrical Insulation*, 2002, Vol. 9.pp. 236-243. ([pdf format, 800K](#))
- 27) Montesinos J., Gorur R. S., Mobasher B., Kingsbury D., "Brittle Fracture in Nonceramic Insulators," *IEEE Transactions on Dielectrics and Electrical Insulation*, 2002, Vol. 9.pp. 244-252. ([pdf format, \)](#))
- 28) Mobasher B., Kingsbury D., Montesinos J., Gorur R. S., "Brittle Fracture in Nonceramic Insulators Part II: Mechanical Aspects of Crimped Glass Reinforced Plastic (GRP) Rods" *IEEE Transactions on Power Delivery*, 2003, pp 852-858. ([pdf format, 798K](#))
- 29) Tixier, R., Mobasher, B., "Modeling of Damage in Cement-Based Materials Subjected To External Sulfate Attack- Part 1: Formulation", *ASCE Journal of Materials Engineering*, Vol. 15, No. 4, pp 305-313, July/August 2003. ([10 pages, pdf format, 296K](#))
- 30) Tixier, R., Mobasher, B., "Modeling of Damage in Cement-Based Materials Subjected To External Sulfate Attack- Part 2: Comparison with Experiments, *ASCE Journal of Materials Engineering*, Vol. 15, No. 4, pp 314-322, July/August 2003. ([9 pages, pdf format, 142K](#))
- 31) B. Mobasher, "Micromechanical Modeling of Filament Wound Cement-Based Composites," *ASCE, Journal of Engineering Mechanics*, Volume 129, No. 4, pp. 373-

- 382, 2003. DOI: 10.1061/(ASCE)0733-9399(2003)129:4(373) ([9 pages, pdf format, 1121K](#))
- 32) Assadi Zeidabadi, N., Mirtalae, K., Mobasher, B., “Optimized Use Of The Outrigger System To Stiffen The Coupled Shear Walls In Tall Buildings,” *International Journal on the Structural Design of Tall Buildings*, Volume 13, Issue 1 , Pages 9 - 27, 2004. [[pdf format, 251K](#)]
 - 33) Mamlouk M. S. and Mobasher, B. “Cracking Resistance of Asphalt Rubber Mix Versus Hot-Mix Asphalt,” *International Journal of Road Materials and Pavement Design*. Vol. 5, No. 4, pp. 435-452, 2004. [[download](#)]
 - 34) R. S. Gorur and B. Mobasher, Discussion of Paper “Can Water Cause Brittle Fracture Failures of Nonceramic Insulators in the Absence of Electric Field”, by Kumosa et al., *IEEE Transactions on Dielectrics and Electrical Insulation*, pp. 621-626, Vo. 12, No. 1, 2005.
 - 35) Peled, A. and Mobasher, B.,”Pultruded Fabric-Cement Composites,” *ACI Materials Journal*, Vol. 102, No. 1, pp. 15-23, 2005. [[download](#)]
 - 36) C. Deenadayalu, B. Mobasher, S. D. Rajan and G. Hall "Refractive Change Induced by the Lasik Flap in a Biomechanical Finite Element Analysis Model", *Journal of Refractive Surgery*, 22:3, 1-7, 2006.[[download](#)]
 - 37) Mobasher, B., Pahilajani, J., Peled, A.,"Analytical Simulation of Tensile Response of Fabric Reinforced Cement Based Composites", *Journal of Cement and Concrete Composites*, Vol. 28, No. 1, Jan-2006, pp. 77-89. [[download](#)]
 - 38) Sharda, J., Deenadayalu, C., Mobasher, B., and Rajan S. D., “Modeling of Multi-Layer Composite Fabrics for Gas Turbine Engine Containment Systems,” *ASCE Journal of Aerospace Engineering*, Vol. 19, No. 1, 2006. pp. 38-45. [[download](#)]
 - 39) Mobasher, B., Peled, A., and Pahilajani, J., “Distributed cracking and stiffness degradation in fabric-cement composites”, *Materials and Structures*, (2006) 39:317–331 [[download](#)]
 - 40) Peled, A., Mobasher, B., “Properties of Fabric-Cement Composites Made by Pultrusion,” *Materials and Structures*, Vol. 39, No. 8, October 2006, 39:787–797 [[download](#)]
 - 41) Peled, A., Sueki, S., and Mobasher, B., “Bonding In Fabric-Cement Systems: Effects Of Fabrication Methods”, *Journal of Cement and Concrete Research*, 36:9, (2006) 1661–1671, 2006. [[download](#)]
 - 42) Sueki, S., Soranakom, C., Peled, A., and Mobasher, B., “Pullout-Slip Response of Fabrics Embedded in a Cement Paste Matrix, *ASCE Journal of Materials Engineering*, Vol. 19, 9, 2007. [[download](#)]

- 43) A. Peled , B. Mobasher , "Tensile Behavior of Fabric Cement-Based Composites: Pultruded and Cast" *ASCE Journal of Materials in Civil Engineering*, Volume 19, Issue 4, pp. 340-348, 2007. [\[download\]](#)
- 44) Soranakom, C., and Mobasher, B., "Closed-Form Moment-Curvature Expressions For Homogenized Fiber Reinforced Concrete, *ACI Materials Journal*, V. 104, No. 4, July-August 2007, pp. 351-359. [\[download\]](#)
- 45) Soranakom, C., and Mobasher, B., "Closed Form Solutions for Flexural Response of Fiber Reinforced Concrete Beams" *ASCE Journal of Engineering Mechanics*, Volume 133, Issue 8, August 2007, pp. 933-941. [\[download\]](#)
- 46) Soranakom, C., and Mobasher, B., "Moment-Curvature Response of Strain Softening and Strain Hardening Cement Based Composites," *Cement and Concrete Composites*, Volume 30, Issue 6, pp 465-477, July 2008 [\[download\]](#)
- 47) Alum, A., Rashid, A., Mobasher, B., and Abbaszadegan, M., "Cement-Based Biocide Coatings for Controlling Algal Growth in Water Distribution Canals", *Journal of Cement and Concrete Composites*, Vol 30, No 9, pp 839-847, 2008. [\[download\]](#)
- 48) Soranakom, C., and Mobasher, B., "Geometrical and Mechanical aspects of Fabric Bonding and Pullout in Cement Composites," *Materials and Structures*, 2009, Vol. 42. pp. 765-777 DOI 10.1617/s11527-008-9422-6. [\[download\]](#)
- 49) D. Naik, S. Sankaran, B. Mobasher and S. D. Rajan, and J.M. Pereira, "Development of Reliable Modeling Methodologies for Fan Blade-Out Containment Analysis. Part I: Experimental Studies," *International Journal of Impact Engineering*, 36 (2009), *International Journal of Impact Engineering, Volume 36, Issue 1, January 2009, Pages 1-11* doi:10.1016/j.ijimpeng.2008.03.007 [\[download\]](#)
- 50) Alum, A., Rashid, A., Mobasher, B., and Abbaszadegan, M., "A Non-Disruptive Method to Quantify Algal Growth on Concrete Surfaces", *ASCE Journal of Environmental Engineering, Journal of Environmental Engineering*, Vol. 135, No. 3, March 1, 2009. DOI: 10.1061/_ASCE_0733-9372_2009_135:3_185_ [\[download\]](#)
- 51) Z. Stahlecker, S. Sankaran, B. Mobasher and S. D. Rajan, and J.M. Pereira, "Development of Reliable Modeling Methodologies for Fan Blade-Out Containment Analysis. Part II: Finite Element Analysis" *International Journal of Impact Engineering*, Volume 36, Issue 3, March 2009, Pages 447-459. [\[download\]](#)
- 52) S. Bansal; B. Mobasher; S. D. Rajan; and I. Vintilescu, "Development of Fabric Constitutive Behavior for Use in Modeling Engine Fan Blade-Out Events" *Journal of Aerospace Engineering, ASCE, Journal of Aerospace Engineering*, Vol. 22, No. 3, July, 2009. p. 249-259. [\[download\]](#)

- 53) Soranakom, C., and Mobasher, B., "Flexural Design of Fiber Reinforced Concrete," *ACI Materials Journal*, September-October 2009, pp. 461-469 [\[download\]](#)
- 54) Flavio de Andrade Silva, B. Mobasher, and R. D. T. Filho, "Cracking Mechanisms in Durable Sisal Fiber Reinforced Cement Composites," *Journal of Cement and Concrete Composites*, 31 (2009) 721–730 10.1016/j.cemconcomp.2009.07.004, [\[download\]](#)
- 55) D. Zhu, M. Gencoglu, B. Mobasher, "Low Velocity Flexural Impact Behavior of AR Glass Fabric Reinforced Cement Composites," *Journal of Cement and Concrete Composites*, 2009, 31 (2009) 379–387. [\[download\]](#)
- 56) A. Peled, B. Mobasher, and Z. Cohen, "Mechanical Properties of Hybrid Fabrics in Pultruded Cement Composites" *Journal of Cement and Concrete Composites*, 31 (2009) 647–657. [\[download\]](#)
- 57) Flavio de Andrade Silva, D. Zhu, B. Mobasher, C. Soranakom, and R. D. T. Filho, "High speed tensile behavior of sisal fiber cement composites", *Materials Science and Engineering A* 527 (2010) 544–552 [\[download\]](#)
- 58) B. Laungrong, B. Mobasher, D. C. Montgomery, and C. M. Borrer, "Hybrid Control Charts for Active Control and Monitoring of Concrete Strength," *ASCE Journal of Materials Engineering*, Vol. 22, No. 1, Jan 1, 2010, pp. 77-87, 2010. [\[download\]](#)
- 59) Bonakdar, A., Mobasher, B., Dey, S.K., Roy, D. M." Multi-Scale Evaluation of Alkali Silica Reactions in Blended Cement Materials, *ACI Materials Journal*, 2010, *ACI Materials Journal*, V.107, No. 4, pp. 380-386. [\[download\]](#)
- 60) Bonakdar, A., and Mobasher, B., "Multi-Parameter Study of External Sulfate Attack in Blended Cement Materials," *Construction and Building Materials*, 24 Volume 24, Issue 1, January 2010, Pages 61-70. DOI: 10.1016/j.conbuildmat.2009.08.009 [\[download\]](#)
- 61) Travis, Q.B., and Mobasher, B., "Correlation of Elastic Modulus and Permeability in Concrete Subjected to Elevated Temperatures," *ASCE Journal of Materials in Civil Engineering*, 22, 735 (2010). [http://dx.doi.org/10.1061/\(ASCE\)MT.1943-5533.0000074](http://dx.doi.org/10.1061/(ASCE)MT.1943-5533.0000074) [\[download\]](#)
- 62) Soranakom, C., and Mobasher, B., "Modeling of tension stiffening in reinforced cement composites: Part I -Theoretical Modeling, *Materials and Structures*, (2010) 43:1217–1230 DOI 10.1617/s11527-010-9594-8, 2010. [\[download\]](#)
- 63) Soranakom, C., and Mobasher, B., "Modeling of tension stiffening in reinforced cement composites: Part II - simulations vs. experimental results," *Materials and Structures*, (2010) 43:1231–1243, DOI 10.1617/s11527-010-9593-9, 2010. [\[download\]](#)

- 64) Zhu, D., Mobasher, B., Rajan, S.D. , “Dynamic Tensile Testing of Kevlar 49[®] Fabrics,” *ASCE Journal of Materials in Civil Engineering*, Vol. 23, No. 3, March 1, 2011. DOI: 10.1061/(ASCE)MT.1943-5533.0000156 [\[download\]](#)
- 65) Moradi-Marani, F., Shekarchi, M., Dousti, A., and Mobasher, B., “Investigation of corrosion damage and repair system in a concrete jetty structure” *ASCE Journal of Performance of Constructed Facilities*, 2010. [http://dx.doi.org/10.1061/\(ASCE\)CF.1943-5509.0000112](http://dx.doi.org/10.1061/(ASCE)CF.1943-5509.0000112) [\[download\]](#)
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- 117) Bonakdar, A., Mobasher, B., “Modeling the Effect of Flyash on the Sulfate Diffusion and Expansion of Concrete, ACI Spring Convention, Atlanta, Georgia, April, 2007.
- 118) Soranakom, C., Mobasher, B. “Closed Form Solutions for Moment Curvature Diagram of Homogenized Fiber Reinforced Concrete,” April 2007, Research in Progress Session, Sponsored by Committee 123, ACI Spring Convention, Atlanta, Georgia.
- 119) Bonakdar A., Anantharaman, S., Mobasher, B., “Modeling of Sulfate Resistance of Flyash Blended Cement Concrete Materials,” Proceeding of the World of Coal Ash (WOCA) Conference, Covington, Kentucky, May, 2007.
- 120) C. Soranakom, and B. Mobasher “Flexural modeling of strain softening and strain hardening fiber reinforced concrete,” HPRCC5 -High Performance Fiber Reinforced Cement Composites, Mainz, Germany, 2007.
- 121) Mustafa Gencoglu, M., Zhu, D., Mobasher, B., “Impact Behavior Of Fabric Reinforced Cement Composites In Flexure,” HPRCC 5 -High Performance Fiber Reinforced Cement Composites, Mainz, Germany, 2007
- 122) M. Gencoglu and B. Mobasher, “The strengthening of the deficient RC exterior beam-column joints using CFRP for seismic excitation, The Third International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa, 10-12 September 2007

- 123) M. Gencoglu and B. Mobasher, "Monotonic and cyclic flexural behaviour of plain concrete beams strengthened by fabric-cement based composites, The Third International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa, 10-12 September 2007.
- 124) B. Mobasher, Alva Peled, "Pultrusion Versus Casting Processes For The Production Of Fabric-Cement Composites," ACI 435/544 Fall 2007 Puerto Rico, ACI 549 Fabrication Technologies For Thin Cementitious Products.
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- 128) Xavier Destree, Chote Soranakom and B. Mobasher, "Elevated Slabs with Steel Fiber Reinforced Concrete: Analysis, Design, Laboratory, and Full Scale Testing," Session on Deflection and Stiffness Issues in FRC and Thin Structural Elements (Structural Implications and Material Properties) ACI 435/544 Fall 2007 Puerto Rico
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- 130) B. Mobasher, Mitigation of Shrinkage Cracking in PCC Pavements, Department of Civil and Environmental Engineering, ASU/ADOT Pavement Materials Conference, Oct, 2007
- 131) B. Mobasher, "Concrete Construction Industry in USA-Cement Based Material and Civil Infrastructure", Cement based Materials and Civil Infrastructure, CBM & CI, Proceedings of International Workshop, Karachi, Pakistan, 2007, pp. , (Invited Talk)
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- 139) D. Zhu, B. Mobasher and S. D. Rajan, "Image Analysis of Kevlar 49 Fabric at High Strain Rate", Society for Experimental Mechanics - 11th International Congress and Exhibition on Experimental and Applied Mechanics 2008, v. 2 , p. 986-991.
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Annual Conference & Exposition on Experimental and Applied Mechanics, Albuquerque, New Mexico, June 1-4, 2009. (Abstract)

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- 144) Gorur, R., Mobasher, B., Olsen, R., Shinde, S., and Erni, J., “Characterization of Composite Cores for High Temperature-Low Sag (HTLS) Conductors”, PSERC Industrial Advisory Board Meeting, May 27-29, 2009, Cornell University [\[download\]](#)

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- 145) Mechtcherine, V., Silva, F., Butler, M., Zhu, D., And Mobasher, B., “Fracture Behavior Of High Performance Cement-Based Composites Under Dynamic Tensile Loads,” The Eighteenth European Conference On Fracture, ECF18, TU Dresden, Dresden, Germany
- 146) Mobasher, B., Soranakom, C., “Effect Of Transverse Yarns In The Pullout Response And Toughening Mechanisms Of Textile Reinforced Cement Composites” The Eighteenth European Conference On Fracture, ECF18, TU Dresden, Dresden, German
- 147) Zhu, D., Mobasher, B., Silva, F., Peled, A., High Speed Tensile Behavior Of Fabric-Cement Composites”, Strain Rate Effects, 64th RILEM Week Location: Aachen, Germany, September 2010
- 148) Silva, F., Butler, M., Zhu, D., Mechtcherine, V., And Mobasher, B., Strength And Fracture Behaviour Of Textile Reinforced Concrete To High Rate Tensile Loading, 64th RILEM Week, Aachen, Germany, September 2010
- 149) Zhu, D., Mobasher, B., Silva, F., Peled, A., “Experimental Study of Fabric-Reinforced Cement-Based Composites under Dynamic Loading” ACI Fall convention, Pittsburgh, PA, 2010.
- 150) S. D. Rajan, B. Mobasher and A. Vaidya, “LS-DYNA Implemented Multi-Layer Fabric Material Model Development for Engine Fragment Mitigation”, 11th International LS-DYNA Users Conference, Detroit, MI, June 2010.

Professional Service Committee Work

- American Concrete Institute, Chair, Committee 544 Fiber Reinforced Concrete, 2010-present
- American Concrete Institute, Chair, Subcommittee 544-f Durability and Physical Properties of Fiber Reinforced Concrete, 2002- 2010
- American Concrete Institute, Chair, Subcommittee 549-A Development of Analysis and Design Guidelines for Thin section Fiber Reinforced Concrete, 2005- present
- International Scientific Committee, COMAT 2007, 4th international conference on science and Technology of Composite materials
- Associate Editor, Computers and Concrete, an International Journal, Techno Press, 2008
- ASCE, Engineering Mechanics Division, Experimental Analysis and Instrumentation (EA&I) Committee
- Arizona Rock Products Association (ARPA) / Arizona Department of Transportation (ADOT), Task group on Concrete Materials, committee member, 2006-2008

Dissertations Awarded

Cheng Yu, Li, Ph.D. Mechanical behavior of cementitious composites reinforced with high volume content of fibers Thesis (Ph.D.) Arizona State University, 1995.
Currently With : URS Greiner Consulting Engineers, Denver, Colorado

Raphael Tixier, Ph.D., Microstructural development and sulfate attack modeling in blended cement-based materials Thesis (Ph.D.)-Arizona State University, 2000.
Currently with: Western Technology Laboratories, Phoenix, Arizona. [\[download\]](#)

José I. Montesinos-Silva, Ph.D. Brittle fracture of glass reinforced plastic rods for nonceramic insulators, Arizona State University, 2000. Jointly with Professor R. Gorur

Soranakom, C., Ph.D., “Multi Scale Modeling Of Fiber And Fabric Reinforced Cement Based Composites” PhD. Dissertation, Arizona State University, 2008. [\[download\]](#)

D. Zhu, “Experimental Study and Finite Element Modeling of Woven Fabrics,” PhD. Dissertation, Arizona State University, 2009. pp. 320 [\[download\]](#)

Flávio de Andrade Silva, Durability and Mechanical Properties of Sisal Fiber Reinforced Cement Composites, PhD. Dissertation, COPPE/UFRJ, Arizona State University, April, 2009. pp. 239. [\[download\]](#)

Aboozar Bonakdar, “Multi-Scale Study Of Durability In Blended Cement Materials,” PhD. Dissertation 2010

Masters Theses Awarded

Beaty, Kirk Leslie, “Fracture properties of asphalt concrete using modified binders”, Arizona State University, 1993. (with J. Zaniewski)

Lin, How-ming , “Fracture properties of asphalt-rubber mixtures,” MS Thesis, Arizona State University, 1993. (with M. Mamlouk)

Devaguptapu, Ravi, “Effect of copper slag on the hydration characteristics, strength, and fracture properties of concrete, MS Thesis, Arizona State University, 1994.

Sun, C.H., “A Finite Element Model for Simulating Radial Keratotomy and Holmium:YAG Laser Thermokeratoplasty Surgeries”, MS Thesis, Arizona State University, 1994.

Pagadala, Rajesh, “A finite element model for the design of keratorefractive surgeries,” Arizona State University, 1994.

Ariño Moreno, Antonio, “A study of copper slag mortar based on durability, strength, and toughness properties,” MS Thesis, Arizona State University, 1996.

Haupt, G.J., “Mechanical Properties of Cement based composite Laminates, ” MS Thesis, Arizona State University, May, 1997. [\[download\]](#)

Vodela, Rajashekar, “Evaluation of system components for cold-formed steel and lightweight cement composite,” MS Thesis, Arizona State University, 1999.

Gouri, Sridevi, “Optimization of Interfacial Zone Characteristics of Fiber-Cement Matrix”, MS Thesis, Arizona State University, 1999. [\[download\]](#)

Pivacek, A., “Development of a Filament Winding Technique for Manufacturing Cement Based Materials,” MS Thesis, Arizona State University, 2001. [\[download\]](#)

Mane, Sandeep Anand, “The effect of flyash on the strength and fracture properties of concrete and cement mortar” MS Thesis, Arizona State University, 2001.

Desai, Tejal, “Mechanical properties of conventional concrete reinforced with alkali-resistant glass fibers”, MS Thesis, Arizona State University, 2001.

Shah, Rimpal V., “Economical concrete mix designs for highway applications with a high dosage of flyash,” MS Thesis, Arizona State University, May, 2003. [\[download\]](#)

Lingannagari, Goutham Reddy, “Coefficient of thermal expansion of concrete materials,” MS Thesis, Arizona State University, 2003.

Sueki, Sachiko, “An analytical and experimental study of fabric-reinforced, cement-based laminated composites” ” MS Thesis, Arizona State University, 2003. [\[download\]](#)

Singla, Nora , “Experimental and theoretical study of fabric cement composites for retrofitting masonry structures,” M.S. Thesis, Arizona State University, 2004. [\[download\]](#)

Philajani, Jitendra, “Fabric-reinforced, cement-based laminated Composites: an experimental and theoretical study,” M.S. Thesis, Arizona State University, 2004. [\[download\]](#)

Dnyanesh Naik, “Experimental Analysis Of Fabrics Used In Engine Housing Of Aircrafts”, Master of Science, Arizona State University, August 2005. [\[download\]](#)

Juan Alfredo Erni, “The Development of Unidirectional and Multidirectional Composite Models Using a Modified Weibull Failure Distribution; Theory, Analysis and Applications,” Nov. 2007. [\[download\]](#)

Saurabh Kumar Bansal, “The Development of Micro-Mechanical Model of Kevlar Fabrics used in Engine Containment System of Aircrafts,” Nov, 2007. [\[download\]](#)

Sudheen Anantharaman, “Sulfate And Alkali Silica Resistance of Class C & F Fly Ash Replaced Blended Cements, “ Jan, 2008 [\[download\]](#)

MS and PhD committee Chair

Soranakom, C., Doctoral Dissertation Committee Chair (13 August 2006 - present)

Tixier, Raphael, Doctoral Dissertation Committee Chair

Naik, Dnyanesh, Masters Thesis Committee Chair

Lingannagari, Goutham, Masters Thesis Committee Chair

Philajani, Jitendra, Masters Thesis Committee Chair

Singla, Nora, Masters Thesis Committee Chair

Vodela, Rajashekar, Masters Thesis Committee Chair

Shah, Rimpal, Masters Thesis Committee Chair

Sueki, Sachiko, Masters Thesis Committee Chair

Mane, Sandeep, Masters Thesis Committee Chair

Desai, Tejal, Masters Thesis Committee Chair

Singla, Nora, Masters Thesis Committee Chair (14 January 2005 - 16 December 2004)

Naik, Dnyanesh, Masters Thesis Committee Chair (3 August 2005 - 15 December 2005)

PhD and Masters Committees (since 2005)

Das, Santanu, Doctoral Dissertation Committee Member (17 November 2006 - present)

Avalos, Javier, Masters Thesis Committee Member (16 August 2006 - present)

Stahlecker, Zach, Masters Thesis Committee Member (18 July 2006 - present)

Silva, Humberto, Doctoral Dissertation Committee Member (20 June 2006 - present)

Sidhu, Rajen, Doctoral Dissertation Committee Member (24 May 2006 - present)
Swann, Cynthia, Doctoral Dissertation Committee Member (14 January 2005 - present)
Li, Wenying, Doctoral Dissertation Committee Member (11 January 2005 - present)
Khatib, Mahab, Masters Thesis Committee Member (10 January 2005 - present)
Krzyzanowski, David, Masters Thesis Committee Member (21 March 2006 - 14 December 2006)
Zhu, Linfa, Doctoral Dissertation Committee Member (3 March 2006 - 29 June 2006)
Natesan, Sivasarayanan, Masters Thesis Committee Member (28 June 2006 - 11 May 2006)
Shen, Li, Masters Thesis Committee Member (14 February 2006 - 11 May 2006)
Kim, Kwangkeun, Doctoral Dissertation Committee Member (27 October 2005 - 15 December 2005)
Choi, Seon-Ho, Doctoral Dissertation Committee Member (27 October 2005 - 15 December 2005)
Sankaran, Satish, Masters Thesis Committee Member (29 July 2005 - 15 December 2005)
Yang, Bo, Doctoral Dissertation Committee Member (11 January 2005 - 15 December 2005)
Xiao, Bing, Doctoral Dissertation Committee Member (8 July 2005 - 5 August 2005)

Continuing Graduate Students

Aboozar Bonakdar, 2006
Mehdi Bakhshi, 2007

Visiting Scientists

Dr. Alva Peled, Ben Guron University, Ber Sheva, Israel. 2002, 2003
Dr. Seyed Kamal Mirtalaei, Isfahan University of Technology, Isfahan, Iran. 2001
Professor Sidney Diamond, Purdue University, 1999.
Dr. Mustafa Gencoglu, Istanbul University of Technology, 2004-2005.

Undergraduate Research

Jay Key, Closed Loop Control Algorithms for Mechanical Testing of Materials, 1994
John Engstrom, Development of a closed loop system for Mechanical Testing of Materials, 1995
Kalvin Young, Mechanical Testing and Design Optimization of Steel Truss Components, 1996
Khorshid Khoshroosafa, Crack Spacing determination in laminated composites 2002-2004
Amir Mehrnia, Tensile Testing of Kevlar and Zylon, 2004
Sandra Warren, Sulfate Attack in Concrete, 2005