

# Mahmoud Reda Taha, Ph.D., PE, F. ASCE, FACI

## CURRICULUM VITAE

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Distinguished Professor and Chair  
Department of Civil, Construction and Environmental Engineering  
University of New Mexico  
MSC01 1070  
Albuquerque, NM 87131

Phone: (505) 385-8930  
Fax: (505) 277-1988  
[mrtaha@unm.edu](mailto:mrtaha@unm.edu)  
[taha.unm.edu](http://taha.unm.edu)

## EDUCATION

- 2000 Ph.D. Civil Engineering, University of Calgary, Calgary, Canada
- 1996 M.S. Structural Engineering, Ain Shams University, Cairo, Egypt
- 1993 B.S. (Honors), Structural Engineering, Ain Shams University, Cairo, Egypt

## ACADEMIC EXPERIENCE

- 2018–present **Distinguished Professor and Chair**, Department of Civil, Construction and Environmental Engineering, University of New Mexico
- 2014–2018 Professor and Chair, Department of Civil, Construction and Environmental Engineering, University of New Mexico
- 2016–2018 Founding Director, UNM Resilience Institute
- 2011–2016 Professor and Regents' Lecturer, Department of Civil, Construction and Environmental Engineering, University of New Mexico
- 2007–present **Director of Structural Engineering Laboratory**, Department of Civil, Construction and Environmental Engineering, University of New Mexico
- 2012–2013 Visiting Professor, American University of Sharjah, Sharjah, United Arab Emirates
- July 2012 Visiting Professor, Sejong University, Seoul, South Korea
- 2010–2012 Director of Graduate Programs, Department of Civil Engineering, University of New Mexico
- 2008–2011 Associate Professor and Regents' Lecturer, Department of Civil Engineering, University of New Mexico
- 2003–2008 Assistant Professor of Structural Engineering, University of New Mexico
- 1999–2003 Research Associate, Department of Civil Engineering/Department of Geomatics Engineering, University of Calgary
- 1996–1999 Research and Teaching Assistant, Department of Civil Engineering, University of Calgary
- 1994–1996 Teaching Assistant/Associate Lecturer, Structural Engineering Department, Ain Shams University

**HONORS AND AWARDS**

- 2021 Award for Issued Patent in 2020, STC.UNM
- 2020 Fellow, American Society of Civil Engineers (ASCE)
- 2020 Award for Four Issued Patents in 2019, STC.UNM
- 2019 Delmar L. Bloem Distinguished Service Award, American Concrete Institute
- 2018 Distinguished Professor, University of New Mexico
- 2018 Member of Tau Beta PI, The Engineering Honor Society
- 2017 Award for Issued Patent in 2017, STC.UNM
- 2017 Fellow, American Concrete Institute
- 2015 Honorary Award, 14th Ain Shams University Structural Engineering Conference
- 2015 American Concrete Institute Ambassador to ICPIC 2015, Singapore
- 2014 Award for Issued Patent in 2014, STC.UNM
- 2013 Award for Issued Patent in 2012, STC.UNM
- 2010 Junior Faculty Research Excellence Award, UNM School of Engineering
- 2010 Walter P. Moore Jr. Faculty Achievement Award, American Concrete Institute
- 2007 UNM Regents' Lecturer, University of New Mexico
- 2007 Stamm Endowed Lectureship Outstanding Faculty Performance, UNM Civil Engineering
- 2007 New Mexico Professional Engineers Service Award
- 2007 Young Investigator Award, Sigma Xi, UNM Chapter
- 2005 Egypt State Award, Academy of Scientific Research, Cairo, Egypt
- 2004 Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities
- 2003 Best Paper/Presentation Award ("Improving INS/GPS positioning accuracy during GPS outages using fuzzy logic"), 16th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA
- 2001 H.W.H. West Special Recognition Award, 9th Canadian Masonry Symposium, Fredericton, Canada
- 2000 Best Ph.D Thesis, Department of Civil Engineering, University of Calgary

## PUBLICATIONS

### Publication Statistics

Journal articles published	165
Special publications (volumes and book chapters)	12
Articles in refereed conference proceedings	186
<b>TOTAL PAPERS PUBLISHED OR ACCEPTED FOR PUBLICATION</b>	<b>363</b>

US Patents 9 issued, 11 pending

Refereed medical abstracts 18

Citations 5205

h index 35

i10- index 111

*Citations statistics via Google Scholar citation reports.*

(★ indicates trainee co-author)

### Books

#### 2018

International Congress on Polymers in Concrete (ICPIC 2018), Polymers for Resilient and Sustainable Infrastructure. Reda Taha, M. M., Genedy, M., Urgessa, G., Eds., Springer.

### Refereed Journal Articles

#### 2021

Hagengruber, T.★, Reda Taha, M. M., Rougier, E., Knight, E., Stormont, J. “Failure in Confined Brazilian Tests on Sandstone”, *Applied Sciences*, 11 (5), 2285, <https://doi.org/10.3390/app11052285>, 2021.

Heras Murcia, D.★, Abdellatef, M., Genedy, M., Reda Taha, M. M. “Rheological Characterization of 3D Printed Polymer Concrete”, *ACI Materials Journal*, Accepted for Publication, 2021.

Boyce, S.★, Knight, E.E., Rougier, E., Reda Taha, M. M, Stormont, J. “Experimental Study Correlating Damage and Permeability in Concrete Using Confined, Flattened Brazilian Disks”, *International Journal of Damage Mechanics*, <https://doi.org/10.1177/1056789521998726> 2021.

Reda Taha, M., Ayyub, B., Soga, K., Daghash, Heras Murcia★, D., Moreu, F., Soliman, E., “Emerging Technologies for Resilient Infrastructure – A Conspectus and Roadmap”, *ASME-ASCE Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, Vol. 7, No. 2, 03121002, 2021, <https://ascelibrary.org/doi/abs/10.1061/AJRUA6.0001134>

Vemuganti, S. ★, Stormont, J. C., Pyral-Nolte, L. J., Dewers, T. and Reda Taha, M. M. “Cement Sensors with Acoustic Bandgaps Using Carbon Nanotubes”, *Smart Materials and Structures*, Vol. 30, No. 3, <https://doi.org/10.1088/1361-665X/abdcff>, 2021.

## 2020

Vemuganti, S. ★, Chennareddy, R., Riad, A. and Reda Taha, M. M. “Pultruded GFRP Reinforcing Bars Using Nanomodified Vinyl Ester”, *Materials*, 13, 5710; <https://doi:10.3390/ma13245710>, 2020.

Garg ★, P., Nasimi ★, R., Ozdagli, A., Zhang, S., Mascarenas, D. Reda Taha, M. M., Moreu, F. "Measuring Transverse Displacements Using Unmanned Aerial Systems Laser Doppler Vibrometer (USA-LDV): Development and Field Validation”, *Sensors*, 2020, 20, 6051; <https://doi:10.3390/s20216051>, 2020

Heras Murcia ★, D., Genedy, M. and Reda Taha, M. M. “Examining the Significance of Infill Printing Pattern on the Anisotropy of 3D-Printed Concrete” *Construction & Building Materials*, 262, 120559, <https://doi.org/10.1016/j.conbuildmat.2020.120559>, 2020.

Vemuganti, S. ★, Soliman, E. and Reda Taha, M. M. “3D-Printed Pseudo Ductile Fiber-Reinforced Polymer (FRP) Composite Using Discrete Fiber Orientations”, *Fibers*, Vol. 8, No. 53; <https://doi.org/10.3390/fib8090053>, 2020.

Boyce, S. ★, Lei, Z., Euser, B., Knight, E.E., Rougier, E., Stormont, J. and Reda Taha, M. M. “Simulation of mixed-mode fracture using the combined finite-discrete element method”, *Computational Particle Mechanics*, <https://doi.org/10.1007/s40571-020-00341-6>, 2020.

Hatambeigi, M. ★, Chojnicki, K., Reda Taha, M. M., Stormont, J. C. “Visco-inertial gas flow through wellbore cement fractures”, *Journal of Natural Gas Science & Engineering*, Vol.77, No. 6, pp. 255-267, <https://doi.org/10.1016/j.jngse.2020.103275>, 2020.

## 2019

Sakr, M. R. ★, Bassuoni, M. T., Reda Taha, M. M., “Effect of Coatings on Concrete Resistance to Physical Salt Attack”, *ACI Materials Journal*, Vol. 116, No. 6, pp. 255-267, 2019.

Garg, P. R. ★, Moreu, F., Ozdagli, A. I., Reda Taha, M. M., Mascarenas, D. L. “Noncontact Dynamic Displacement Measurement of Structures Using a Moving Laser Doppler Vibrometer”, *ASCE Journal of Bridge in Civil Engineering*, Vol. 24, No. 9, 13 p., <https://ascelibrary.org/doi/10.1061/%28ASCE%29BE.1943-5592.0001472> 2019.

Vemuganti, S. ★, Rahman, M. K., Reda Taha, M. M., “Evolution of Elastic Modulus and Creep of Nanoclay Modified Oil Well Cement”, *ACI SP-335: Nanotechnology for Improved Concrete Performance*. Bassuoni, M. & Reda Taha, M. M., Eds., pp. 128-144. 2019.

Chennareddy, R. ★, Tawheed, A., Kandil, U. F., Elgawady, M., Reda Taha, M. M., “UV-Resistant GFRP Composites Using Carbon Nanotubes”, *Construction & Building Materials*, Vol. 220, pp. 679-689, <https://doi.org/10.1016/j.conbuildmat.2019.05.167>, 2019.

- Anwar, I. ★, Chojnicki, K., Bettin, G., Reda Taha, M., Stormont, J. C. “Characterization of Wellbore Casing Corrosion Product as a Permeable Porous Medium”, *Journal of Petroleum Science & Engineering*, Vol. 180, pp. 982-993, <https://doi.org/10.1016/j.petrol.2019.05.087>, 2019.
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- Genedy, M. ★, Matteo, E., Stenko, M., Stormont, J., Reda Taha, M. M., “Nanomodified Methyl Methacrylate Polymer for Sealing of Microscale Defects in Wellbore Systems”, *ASCE Journal of Materials in Civil Engineering*, Vol. 31, No. 7, 04019118, [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0002754](https://doi.org/10.1061/(ASCE)MT.1943-5533.0002754), 2019.
- Van de Werken, N.★, Reese, M. S.★, Reda Taha, M., Tehrani, M. “Investigating the Effects of Fiber Surface Treatment and Alignment on Mechanical Properties of Recycled Carbon Fiber Composites”, *Journal of Composites: Part A: Applied Science & Manufacturing*, Vol. 119, pp. 38-47. <https://doi.org/10.1016/j.compositesa.2019.01.012>, 2019.
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- Aly, S. T.★, El-Dieb, A. S., and Reda Taha, M. M., “Self-compacting concrete incorporating large ceramic waste powder content as a partial replacement of cement,” *Journal of Materials in Civil Engineering*, Vol. 31, No. 2, [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0002588](https://doi.org/10.1061/(ASCE)MT.1943-5533.0002588), 2019.
- 2018**
- Douba, A. E.★, Emiroglu, M., Kandil, U. F., and Reda Taha, M. M., “Very ductile polymer concrete using carbon nanotubes,” *Construction and Building Materials*. Vol. 196, No. 30, pp. 468-477. [doi.org/10.1016/j.conbuildmat.2018.11.021](https://doi.org/10.1016/j.conbuildmat.2018.11.021), 2018.
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- Borowski, E.★, Soliman, E., Khan, A., and Reda Taha, M. M., “Stowage and deployment of a viscoelastic orthotropic carbon fiber composite tape spring,” *Journal of Spacecraft and Rockets*, Vol. 55, No. 4, pp. 829-840, [doi.org/10.2514/1.A33960](https://doi.org/10.2514/1.A33960), 2018.
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- Aly, S. T. ★, El-Dieb, A. S., and Reda Taha, M. M., “Ceramic waste powder for eco-friendly self-compacting concrete (SCC),” *Advances in Civil Engineering Materials*, Vol. 7, No. 1, pp. 426-446, [doi.org/10.1520/ACEM20180043](https://doi.org/10.1520/ACEM20180043), 2018.
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- El-Dieb, A. S., Reda Taha, M. M., Kanann, D. M. ★, and Aly, S. ★, “Ceramic waste powder from landfill to sustainable concretes,” *Proceedings of the Institution of Civil Engineers: Construction Materials*, Vol. 171, No. 3, pp. 109-116, [doi.org/10.1680/jcoma.17.00019](https://doi.org/10.1680/jcoma.17.00019), 2018.
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- 2017**
- Soliman, E., Aboubakr, S. H. ★, and Reda Taha, M. M., “Estimating fracture toughness of C-S-H using nanoindentation and the extended finite element method,” *International Journal of Advances in Engineering Sciences and Applied Mathematics*, Vol. 9, No. 3, pp. 154-168, [doi.org/10.1007/s12572-017-0191-8](https://doi.org/10.1007/s12572-017-0191-8), 2017.
- Genedy, M. ★, Chennareddy, R. ★, Soliman, E., Kandil, U. F., and Reda Taha, M. M., “Improving shear strength of GFRP bolted lap joints using carbon nanotubes,” *Journal of Reinforced Plastics and Composites*, Vol. 36, No. 13, pp. 958-971, [doi.org/10.1177%2F0731684417697827](https://doi.org/10.1177%2F0731684417697827), 2017.
- Douba, A. E. ★, Emiroglu, M., Tarefder, R., Kandil, U. F., and Reda Taha, M. M., “Improving fracture toughness of polymer concrete using carbon nanotubes,” *Transportation Research Record: Journal of the Transportation Research Board*, Vol. 2612, pp. 96-103, 2017.

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- Kannan, D. M. ★, Aboubakr, S. H. ★, El-Dieb, A. S., and Reda Taha, M. M., “High performance concrete incorporating ceramic waste powder as large replacement of Portland cement,” *Construction and Building Materials*, Vol. 144, pp. 35-41, [doi.org/10.1016/j.conbuildmat.2017.03.115](https://doi.org/10.1016/j.conbuildmat.2017.03.115), 2017.
- Salas, C., Hoopes, D., Reda Taha, M.M., DeCoster, T.A. “External fixation for treating tibial shaft fractures using a triangular two-planar frame: A computational and biomechanical study” *UNM Orthopaedic Research Journal*, Vol. 6, No. 1, pp.81-90, <https://issuu.com/rwood03/docs/unmorj17>, 2017.
- Chennareddy, R. ★ and Reda Taha, M. M., “Effect of combining NSM and U-Wrap FRP strengthening techniques on behavior of RC beams,” *ACI Structural Journal*, Vol. 114, No. 3, pp. 719-728, 2017.
- Genedy, M. ★, Kandil, U. F., Matteo, E., Stormont, J., and Reda Taha, M. M., “A new polymer nanocomposite repair material for restoring wellbore seal integrity,” *International Journal of Greenhouse Gas Control*, Vol. 58, pp. 290-298, [doi.org/10.1016/j.ijggc.2016.10.006](https://doi.org/10.1016/j.ijggc.2016.10.006), 2017.
- Al-Sabagh, A., Taha, E. ★, Kandil, U. F., Awadallah, A. E., Nasr, G., and Reda Taha, M. M., “Monitoring moisture damage propagation in GFRP composites using carbon nanoparticles,” *Polymers*, Vol. 9, No. 94, [doi.org/10.3390/polym9030094](https://doi.org/10.3390/polym9030094), 2017.
- Douba, A. ★, Genedy, M. ★, Matteo, E., Kandil, U. F., Stormont, J., and Reda Taha, M. M., “The significance of nanoparticles on bond strength of polymer concrete to steel,” *International Journal of Adhesion and Adhesives*, Vol. 74, pp. 77-85, [doi.org/10.1016/j.ijadhadh.2017.01.001](https://doi.org/10.1016/j.ijadhadh.2017.01.001), 2017.

Awadallah, A. E., Aboul-Enein, A. A., Kandil, U. F., and Reda Taha, M. M., “Facile and large-scale synthesis of high quality few-layered graphene nano-platelets via methane decomposition over unsupported iron family catalysts,” *Materials Chemistry and Physics*, Vol. 191, pp. 75-85, [doi.org/10.1016/j.matchemphys.2017.01.007](https://doi.org/10.1016/j.matchemphys.2017.01.007), 2017.

Gomez, S. ★, Sobolik, S., Matteo, E., Reda Taha, M. M., and Stormont, J., “Investigation of wellbore microannulus permeability under stress via experimental wellbore mock-up and finite element modeling,” *Computers and Geotechnics*, Vol. 83, pp. 168-177, [doi.org/10.1016/j.compgeo.2016.10.001](https://doi.org/10.1016/j.compgeo.2016.10.001), 2017.

#### 2016

Daghash, S. M. ★, Soliman, E., Kandil, U. F., and Reda Taha, M. M., “Improving impact resistance of polymer concrete using CNTs,” *International Journal of Concrete Structures and Materials*, Vol. 10, No. 4, pp. 539-553, [doi.org/10.1007/s40069-016-0165-4](https://doi.org/10.1007/s40069-016-0165-4), 2016.

El-Sabagh, A., Taha, E. ★, Kandil, U. F., Nasr, G. M., and Reda Taha, M. M., “Monitoring damage propagation in glass fiber composites using carbon nanofibers,” *Nanomaterials*, Vol. 6, No. 169, [doi.org/10.3390/nano6090169](https://doi.org/10.3390/nano6090169), 2016.

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#### 2015

Lawrence, J. ★, Christodoulou, C., and Reda Taha, M. M., “A high-power microwave zoom antenna with metal-plate lenses,” *IEEE Transactions on Antennas and Propagation*, Vol. 63, No. 8, pp. 3380-3389, [doi.org/10.1109/TAP.2015.2435037](https://doi.org/10.1109/TAP.2015.2435037), 2015.

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#### 2014

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Kim, J. J., Youm, K-S., and Reda Taha, M. M., “Extracting concrete thermal characteristics from temperature time history of RC column exposed to standard fire,” *The Scientific World Journal*, Vol. 2014, Article ID 242806, 10 pp., [doi.org/10.1155/2014/242806](https://doi.org/10.1155/2014/242806), 2014.

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Kim, J. J. and Reda Taha, M. M., “Experimental and numerical evaluation of direct tension test for cylindrical concrete specimens,” *Advances in Civil Engineering*, Vol. 2014, Article ID 156926, 8 pp., [doi.org/10.1155/2014/156926](https://doi.org/10.1155/2014/156926), 2014.

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Reda Taha, A., Soliman, E., Reda Taha, M. “Expandable-Retractable Apparatus for Fast Insertion of ECMO and other Cannulas (ERIC) via Radial Dilatation and Methods of Making” filed April 2020, Full patent filed April 2021.

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Reda Taha, M., Soliman, E., “Gradually Recruited Fiber Reinforced Polymer (FRP) Composite” filed December 2018.

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Reda Taha, M. M., Khan, A. I., and Soliman, E. A., “Stiffener free lightweight composite panels for civil, automotive and aerospace applications using nanomaterials and/or 3-D printing technology,” filed March 2016.

### **Refereed Medical Abstracts with Poster/Podium Presentations**

#### **2017**

Salas C., Long, L. ★, Gomez, J. ★, Reda Taha, M., Mercer, D., “Morphometric, mechanical, and histological characterization of the ligaments of the trapeziometacarpal joint,” 2017 Biomedical Engineering Society Annual Meeting, Phoenix, Arizona, USA, October 2017.

#### **2016**

Salas, C., Mercer, D., Brantley, J., Carlston, C., and Reda Taha, M. M., “Morphometric, mechanical, and histological characterization of the ligaments of the thumb carpometacarpal joint: Correlation to thumb stability,” podium presentation, Orthopaedic Research Society 2016 Annual Meeting, Orlando, Florida, USA, March 2016.

#### **2015**

Salas, C., Mercer, D., Brantley, J., Baldwin, E., and Reda Taha, M. M., “High resolution motion analysis for identification of primary trapeziometacarpal joint stabilizers during grip

motion,” poster presentation, Orthopaedic Research Society 2015 Annual Meeting, Las Vegas, Nevada, USA, March 2015.

#### 2014

Salas, C., Brantley, J., Clark, J., Baldwin, E., Reda Taha, M. M., and Mercer, D., “Periprosthetic damage in the distal radius following treatment for extra-articular fractures (AO 23-A3.2) using two-column volar locked plating,” the American Society for Surgery of the Hand 2014, Boston, Massachusetts, USA, September 2014.

Salas, C., Brantley, J., Clark, J., Baldwin, E., Reda Taha, M. M., and Mercer, D., “Patterns of failure in the distal radius following treatment for extra-articular fractures (AO 23-A3.2) using two column volar plates,” 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, Louisiana, USA, March 2014.

Salas, C., Dickens, A., Rise, L., Reda Taha, M. M., and Gehlert, R., “Titanium mesh as a low-profile alternative for treatment of patella fractures: A feasibility study,” 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, Louisiana, USA, March 2014.

#### 2013

Hoopes, D., Salas, C. ★, Qualls, C., Reda Taha M. M., and DeCoster, T., “External fixation: Modern return to basics,” podium presentation, 32nd Annual University of New Mexico Orthopaedic Alumni Conference, Albuquerque, New Mexico, USA, June 2013.

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Mercer, D., Salas, C., Reda Taha, M. M., and Moneim M., “Biomechanical study investigating partial trapeziectomy with local soft tissue interposition as potential treatment for trapeziometacarpal osteoarthritis,” podium presentation, 59th Annual Meeting of the Orthopaedic Research Society, San Antonio, Texas, USA January 2013.

#### 2012

Salas C. ★, Reda Taha, M. M., DeCoster, T., Hoopes, D., “Finite element design and experimental testing of a novel triangular external fixator configuration for tibial shaft fracture treatment,” poster presentation, Biomedical Engineering Society Annual Meeting, Atlanta, Georgia, USA, October 2012.

#### 2010

Mercer, D., Salas, C. ★, Love, J., Lansing, L., Medoro, A., Reda Taha, M. M., and Cheema, T., “Simulated osteotomy of the trapezium reduced radial subluxation and improves contact pressure distributions across the thumb carpometacarpal joint in lateral pinch,” *ASME Summer Bioengineering Conference SBC2010*, Naples, Florida, USA, June 2010.

Salas, C.★, Mercer, D., DeCoster, T., and Reda Taha, M. M., “Experimental and probabilistic finite element analysis of distal femoral fractures: A comparison of locking plate versus intermedullary nail fixation,” *ASME Summer Bioengineering Conference SBC2010*, Naples, Florida, USA, June 2010.

Salas, C.★, Reda Taha, M. M., DeCoster, T., and Mercer, D., “Probabilistic failure analysis of locking compression plating vs. intramedullary nailing for treatment of distal femur fractures,” podium and poster presentations, 18th Annual Symposium on Computational Methods in Orthopaedic Biomechanics, New Orleans, Louisiana, USA, March 2010.

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Afifi, A., Medoro, A.★, Salas, C.★, Reda Taha, M. M. and Cheema, T., “Anatomy of irreducible metacarpophalangeal dislocation in a cadaver model,” podium presentation, Annual Meeting of the American Society for Surgery of the Hand, San Francisco, California, USA, September 2009.

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Afifi, A., Medoro, A.★, Salas, C.★, Reda Taha, M. M., and Cheema, T., “Anatomy of irreducible metacarpophalangeal dislocation in a cadaver model,” podium presentation, 28th Annual University of New Mexico Orthopaedic Alumni Conference, Albuquerque, New Mexico, USA, June 2009.

#### 2008

Salas, C.★, Reda Taha, M. M., DeCoster, T., and Mercer, D., “Pattern of failure of LCP’s contrasted with conventional treatment of distal femur fracture,” podium presentation, 27th Annual University of New Mexico Orthopaedic Alumni Conference, Albuquerque, New Mexico, USA, June 2008.

#### **Thesis and Dissertation**

*A New Non-Metallic Anchorage System for Post-Tensioning Applications Using Fibre Reinforced Polymers (FRP)*. Ph.D. dissertation, University of Calgary, November 1999.

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## RESEARCH AND GRANTS

### Current Focus

Resilient infrastructure through emerging technologies such as multi-functional and nano-modified polymer concrete and composites and 3-D printing. Current research projects include:

- Multifunctional 3-D printed polymer concrete and composites for resilient infrastructure
- Wellbore integrity and subsurface engineering for geothermal wells
- CO<sub>2</sub>-based materials for the built environment

### Research Statistics

Funded proposals since December 2003	71
Pending proposals	2

Funding awarded as PI	\$7,749,594
As co-PI	\$7,315,066
<b>TOTAL AWARDED SINCE DECEMBER 2003</b>	<b>\$15,064,660</b>
<i>Annual mean average funding</i>	<i>\$836,925</i>

### Funded Research

*PIs and co-PIs are UNM Civil, Construction and Environmental Engineering faculty except where otherwise noted.*

Year	Project	Agency	Period (months)	Award
2021	PI Next Generation Cognizant Composite Structures for In-Space Manufacturing (Co-PI: Leah Buechley, Yu-Lin Shen, Christos Christodoulou)	Air Force Research Lab	24	\$600,000
2020	PI Cognizant Composites (Co-PI: Leah Buechley)	Air Force Research Lab	12	\$130,000
2019	Cool and Sustainable Sidewalks (PI: Greg Rowangould & Co-PI: Claude Morelli)	Environmental Protection Agency (EPA)	24	\$25,000
2019	PI “Field implementation of methods for retrofitting corroded metal culverts using GFRP”	New Mexico Department of Transportation	24	\$100,000
2019	PI Cement Fracture under Varying Environment (Co-PI: John Stormont)	Sandia National Laboratories	24	\$170,000
2019	“Workshop on Improving Knowledge of Connections Between Urban and Hinterland Systems” (PI: Mark Stone)	National Science Foundation	12	\$39,660

2019	PI	100,000 Strong in the Americas Innovation Fund, ExxonMobil Innovation Competition, Partners of America.	US Department of State	12	\$45,000
2018		“Flow measurements in cement systems” (PI: John Stormont)	Sandia National Laboratories	36	\$150,000
2018		“Agile manufacturing for high-value, low-volume manufacturing” (PI: Rafael Ferro, UNM Electrical and Computer Engineering)	Air Force Research Lab	24	\$600,000 (out of \$2.8 million grant to UNM)
2018	PI	“Cost-effective techniques for retrofitting corroded metal culverts using GFRP”	New Mexico Department of Transportation	12	\$94,000
2017		“Correlating damage, fracture, and permeability enhancement in rocks subjected to high-strain-rate loading” (PI: John Stormont)	New Mexico Research Consortium, Los Alamos National Laboratory	36	\$432,000
2017	PI	“Acoustic contrast cement using carbon nanotubes” (Co-PI: John Stormont)	Sandia National Laboratories	30	\$155,000
2017		“High-resolution x-ray diffractometer for advanced epitaxial thin-film and nanoscale materials characterization” (PI: Daniel Feezell, UNM Electrical and Computer Engineering)	Department of Defense	12	\$340,000
2017		“Transportation Consortium of South-Central States (Tran-SET)” (PIs: Marwa Hassan, Louisiana State University; Susan Bogus Halter, UNM)	U.S. Department of Transportation	72	\$3,348,000
2016	PI	“LDRD: Fit-for-purpose seal material for cement-rock interface” (Co-PI: John Stormont)	Sandia National Laboratories	36	\$397,919
2016	PI	“Field implementation of fatigue-enhanced polymer concrete incorporating nanomaterials” (Co-PI: Rafi Tarefder)	Southern Plains Transportation Center	12	\$150,000
2016		“Monitoring and repair of damaged cement-geomechanical interfaces in high-temperature high-pressure repository and borehole scenarios” (PI: John Stormont)	Sandia National Laboratories	12	\$100,000
2016	PI	“Investigating geomechanical size-effect of cement-rock interfaces” (Co-PI: John Stormont)	Los Alamos National Laboratory	12	\$132,660

2016	PI	“Multi-scale characterization of cement-shale interface” (Co-PI: John Stormont)	Sandia National Laboratories	4	\$10,000
2016	PI	“Optimization of aerospace tape spring for controlled deployment”	Air Force Research Laboratory	6	\$50,000
2016	PI	“Carbon black for producing carbon fibers – phase I: Carbon black characterization” (Co-PI: Rick Kemp, UNM Chemistry and Chemical Biology)	The Brayman Group	4	\$10,000
2015		“Railroad bridge inspections for replacement prioritization using unmanned aerial vehicles (UAVs) with 3-D laser-scanning capabilities” (PI: Fernando Moreu)	Transportation Research Board (National Academies of Sciences, Engineering, and Medicine)	12	\$99,400
2015	PI	“US-EGYPT Workshop: Toward Resilient and Sustainable Infrastructure Development at the new Suez Canal region in Egypt” (Co-PI: Mark Stone)	National Science Foundation	12	\$39,430
2015		“Time reversal methods for the detection and monitoring of CO <sub>2</sub> /brine leakage pathways in wellbore systems” (PIs: Bill Carey, Los Alamos National Laboratory; John Stormont)	National Energy Technology Laboratory (DOE)	36	\$195,000
2015	PI	“EAGER: Engineering a low-cost recycled carbon fiber composite” (Co-PI: Mehran Tehrani, UNM Mechanical Engineering)	National Science Foundation	12	\$98,200
2015	PI	“Preliminary investigation fit-for-purpose cement of rock-cement interface characteristics for sub terrain applications” (Co-PI: John Stormont)	Sandia National Laboratories	6	\$25,000
2015	PI	“Stabilized earth blocks for Jemez Pueblo”	Jemez Community Development Corporation	24	\$130,000
2014	PI	“Improving fatigue strength of polymer concrete using nanomaterials” (Co-PI: Rafi Tarefder)	Southern Plains Transportation Center	24	\$200,000
2014	PI	“DMA equipment for polymer and polymer nanocomposite testing”	Office of the Vice President for Research, UNM	12	\$100,000
2013	PI	“Engineering viscoelastic behavior of deployable FRP composites using nanoparticles”	Air Force Office of Scientific Research	36	\$448,081

2013	PI	“Preliminary experimental investigation of sludge-based cement material”	Los Alamos National Laboratory	6	\$30,000
2012	PI	“Wellbore seal repair using nanocomposite materials” (PI: John Stormont)	Department of Energy	36	\$880,000
2011	PI	“A new generation of polymer concrete with improved impact and fatigue strength using carbon nanotubes”	STC.UNM	12	\$25,000
2011	PI	“Nano-rubber toughened epoxy for energy-absorbing composites” (Co-PI: Usama Kandil, Egyptian Petroleum Research Institute)	National Science Foundation	36	\$221,876
2011	PI	“Synthesis and multi-scale characterization of calcium silicate hydrate (CSH)”	National Science Foundation	36	\$196,315
2010	PI	“Assessment of health and integrity of aerospace joints via in situ ultrasonic signals”	Moog CSA Engineering	12	\$30,000
2010	PI	“High-velocity impact testing equipment for blast-tolerant composites” (Co-PI: Marwan Al-Haik, UNM Mechanical Engineering, currently: Embry-Riddle Aeronautical University)	Defense University Research Instrumentation Program	12	\$129,000
2010	PI	“Topological optimization of photonic crystals”	Sandia National Laboratories	12	\$43,000
2009	PI	“New high-toughness composite materials using functional nano-rubber particles” (Co-PI: Usama Kandil, Egyptian Petroleum Research Institute)	U.S.-Egypt Higher Education Initiative	6	\$15,000
2009		“Sputtering system for CNT growth for next-generation structural composites” (PI: Marwan Al-Haik, UNM Mechanical Engineering)	Defense University Research Instrumentation Program	12	\$190,000
2009	PI	“Structural health monitoring for aerospace structures”	Sandia National Laboratories	12	\$30,582
2009	PI	“Smart structural health monitoring of aerospace structures”	Air Force Research Laboratory	24	\$50,000
2009		“Risk analysis” (PI: Frank Gilfeather, UNM Mathematics and Statistics)	Defense Threat Reduction Agency	12	\$130,000
2008	PI	“Multi-scale topological optimization for next-generation impact-tolerable composites” (Co-PIs: Marwan Al-Haik, Claudia Luhrs, UNM Mechanical	Army Research Office	36	\$803,000

		Engineering-currently: Embry-Riddle Aeronautical University; Daniel A. Tortorelli, University of Illinois at Urbana-Champaign; Thomas Connolly, University of Texas at San Antonio)			
2008		“Novel structural composite using surface grown carbon nanotubes” (PI: Marwan Al-Haik-currently: Embry-Riddle Aeronautical University;, UNM Mechanical Engineering; co-PI: Claudia Luhrs, UNM Mechanical Engineering)	National Science Foundation	24	\$231,518
2008	PI	“Next-generation composites using surface-grown carbon nanotubes” (Co-PIs: Marwan Al-Haik, UNM Mechanical Engineering, - currently: Embry-Riddle Aeronautical University; and Claudia Luhrs, UNM Mechanical Engineering)	Defense Threat Reduction Agency	36	\$1,123,000
2008	PI	“Examining short- and long-term properties of self-consolidating concrete”	New Mexico Department of Transportation	27	\$110,000
2008		“Quantification of inference uncertainty in scientific and social modeling/forecasting applications” (PI: Timothy Ross)	Defense Threat Reduction Agency	24	\$299,000
2008		“Pre-incident indicators analysis” (PI: Frank Gilfeather, UNM Mathematics and Statistics)	Department of Homeland Security	12	\$123,406
2007	PI	“Optimization of photonics and acoustic bandgap materials”	Sandia National Laboratories	24	\$170,813
2007		“An integrated multidisciplinary nanotechnology undergraduate education program at UNM” (PI: Marwan Al-Haik, UNM Mechanical Engineering (currently: Embry-Riddle Aeronautical University));; co-PI: Zayd Leseman, UNM Mechanical Engineering, (currently: Kansas State University))	National Science Foundation	24	\$199,900
2007		“Investigating locking pegs with intermediary nails” (PI: Thomas Decoster, UNM Orthopaedics and Rehabilitation)	Orthofix Inc.	12	\$32,000
2007	PI	“Post-construction monitoring of FRP strengthening system at Bridge 7937, Tucumcari, New Mexico”	Federal Highway Administration	18	\$120,000



2007		“Nanotechnology-based advanced cementitious geo-materials for blast resistance structures” (PI: Arup Maji)	Defense Threat Reduction Agency	24	\$393,829
2007		“Multi-variable Intelligent Decision Support Tool: MIDST” (PI: Frank Gilfeather, UNM Mathematics and Statistics)	Defense Threat Reduction Agency	12	\$145,288
2006	PI	“Strengthening reinforced concrete bridges in New Mexico using FRP”	New Mexico Department of Transportation	12	\$95,783
2006		“Investigating pattern of failure of locking plates contrasted with conventional treatment of distal femur fracture” (PI: Thomas Decoster, UNM Orthopaedics and Rehabilitation)	Stryker Johnston Foundation	12	\$41,000
2006		“Decision support system for chemical and biological attacks” (PI: Frank Gilfeather, UNM Mathematics and Statistics)	Defense Threat Reduction Agency	12	\$150,000
2005	PI	“Optimization of nanophotonic crystal micro-structure for efficient energy transmission”	Sandia National Laboratories	12	\$29,000
2005		“Strategic partnership for undergraduate research activities” (PI: Frank Gilfeather, UNM Mathematics and Statistics)	Defense Threat Reduction Agency	12	\$100,000
2005	PI	“Intelligent damage diagnosis module”	Sandia National Laboratories	12	\$40,000
2005	PI	“Intelligent modeling modules for predicting and analyzing time-dependent deformations of critical infrastructure”	U.S.-Egypt Science and Technology Joint Fund	6	\$15,000
2005	PI	“Blast load simulation and courseware” (Co-PI: Arup Maji)	Defense Threat Reduction Agency	12	\$344,000
2005	PI	“Exploratory investigations for developing a multi-dimensional fuzzy damage recognition approach for structural health monitoring”	Sandia National Laboratories	6	\$18,000
2005	PI	“Life-cycle cost analysis of bridges for maintenance decision making”	New Mexico Department of Transportation	12	\$50,000
2004	PI	“Intelligent damage diagnostic module for structural health monitoring”	Sandia National Laboratories	12	\$40,000

2004		“Decision support system for chemical and biological attacks” (PI: Frank Gilfeather, UNM Mathematics and Statistics)	Defense Threat Reduction Agency	12	\$125,000
2004	PI	“Integrating structural modeling and artificial intelligence techniques for modeling time-dependent behavior of knee ligaments”	Oak Ridge Associated Universities	12	\$10,000
2004	PI	“Exploratory investigation of wavelets for structural health monitoring”	Sandia National Laboratories	3	\$15,000

### International Funded Research Projects Participated In

Year	Project	Agency	Period (months)	Award
2020	Co-PI: “Advanced Water Desalination Technology: Cost Effective Microbial Water Desalination Cells using Nano-Modified Glass Fiber Polymer Nanocomposites” (PI: Usama Kandil, Egyptian Petroleum Research Institute, Egypt)	Science and Technology Development Fund, U.S.-Egypt	24	E£1.9M (\$150,000)
2014	Co-PI: “New pavement characterization using nanoindentation” (PI: Amina Saleh, Egyptian Petroleum Research Institute, Egypt)	Science and Technology Development Fund, U.S.-Egypt	24	E£2.1M (\$300,000)
2014	Co-PI: “Nano-modified glass fibers using carbon nanotubes” (PI: Ahmed Awadallah, Egyptian Petroleum Research Institute, Egypt)	Science and Technology Development Fund, U.S.-Egypt	24	E£2.1M (\$300,000)
2014	Co-PI: “Environment-friendly ‘green’ composites using nano-modified agricultural solid waste” (PI: Usama Kandil, Egyptian Petroleum Research Institute, Egypt)	Science and Technology Development Fund, U.S.-Egypt	36	E£10M (\$1.67M)
2012	Consultant: “Polymer nanocomposite center of excellence” (PI: Usama Kandil, Egyptian Petroleum Research Institute, Egypt)	Science and Technology Development Fund, U.S.-Egypt	12	E£2.5M (\$400,000)
2010	Consultant: “Nano-materials with development of nano-based oil well cement slurry for high temperature and pressure oil well cementing”	KACST, Saudi Arabia	36	SAR 2.1M (\$533,000)

## INVITED TALKS

### 2021

“Next Generation 3D Printed Concrete and Composites: Research and Future Opportunities”, Civil Engineering and Engineering Mechanics (CEEM) Seminar, Columbia University in the City of New York, Invited Talk, April 2021.

“3D Printed Concrete: Research, Challenges and Future Opportunities”, Thailand Concrete Association Conference, Invited Talk, March 2021.

### 2020

“Polymer Concrete for Bridge Deck Joints in Accelerated Bridge Construction”, American Concrete Institute Oklahoma Chapter, Online-Invited Talk, November 2020.

“Can the Magic Glue Cement Turn Green?”, Podcast, Resources Radio, August 2020.

“Emerging Technologies for Infrastructure Resilience: Realizing the Opportunity”, Sandia National Laboratories, Infrastructure Community of Practice, Online-Invited Talk, July 2020.

“Structural Retrofit of Corroded Metal Culverts using GFRP Slip Liner”, Paving and Transportation Conference, Albuquerque, New Mexico, USA, January 2020.

### 2019

“Structural Retrofit of Corroded Metal Culverts using GFRP Slip Liner”, New Mexico Society of Professional Engineers (NMSPE), November 8, 2019.

“Nano-Modified 3D Printed Concrete and Composites for Resilient Infrastructure: Research, Challenges and Future Opportunities” Invited Talk, Egyptian Society of Civil Engineers (ESCE), Cairo, Egypt, March 10, 2019.

“Emerging Technologies for Resilient Infrastructure,” honorary conference chairman and keynote speaker, Third International Conference on Infrastructure Management, Assessment and Rehabilitation Techniques (ICIMART’19), Dubai, United Arab Emirates, March 2019.

### 2018

“Nano-modified polymer concrete: Research, challenges and future opportunities,” keynote speaker, International Congress on Polymers in Concrete (ICPIC 2018), May 2018.

“Nano-modified polymer concrete and composites for resilient infrastructure: Research, challenges and future opportunities,” invited Lecture, Department of Civil Engineering, University of Illinois at Chicago, March 2018.

“Next generation polymer concrete: Applications, research and future opportunities,” invited lecture, American Concrete Institute, New Mexico Chapter, February 2018.

**2017**

“Next generation nano-modified polymer composites for infrastructure applications,” keynote speaker, Second International Congress on Materials & Structural Stability, Rabat, Morocco, November 2017.

“Redundancy: A gateway for resilience-based design of civil infrastructure,” panel moderator and invited speaker, 2017 Frontiers in Resilience Symposium, George Mason University, Washington D.C., USA, May 2017.

**2016**

“Polymer nanocomposite for sustainable development in Egypt,” invited talk, Egyptian Petroleum Research Institute, Cairo, Egypt, December 2016.

“UNM Resilience Institute: The challenge, the needs and the opportunity,” invited talk, Sandia National Laboratories, Albuquerque, New Mexico, USA, November 2016.

**2015**

“New generation of polymer concrete incorporating carbon nanotubes,” keynote speaker, International Congress on Polymers in Concrete (ICPIC 2015), Singapore, October 2015.

**2013**

“Toward resilient oil well cement with varying CaO/SiO<sub>2</sub> ratios for improved performance in deep oil wells,” invited talk, Schlumberger Doll Research, Boston, Massachusetts, USA, September 2013.

“Nanotechnology for new class of structural composites,” invited talk, American University in Sharjah, Sharjah, United Arab Emirates, March 2013.

**2012**

“Next generation structural composites using nanotechnology,” invited talk, Sejong University, South Korea, August 2012.

“Multi-scale bio-inspired optimization for blast resistant cellular composites,” invited talk, Army Research Office Workshop on Bio-inspired Systems, April 2012.

**2011**

“Next generation structural composites using nanotechnology,” invited talk, SAMPE Symposium, Albuquerque, New Mexico, November 2011.

“Next generation structural composites using nanotechnology,” invited talk, United Arab Emirates University, Al-Ain, United Arab Emirates, February 2011.

**2010**

“Nano-materials for a new generation of structural composites,” invited talk, Egyptian Petroleum Research Institute, Cairo, Egypt, July 2010.

“Sustainable structural health monitoring for bridges in New Mexico,” invited talk, 47th Paving Conference, Albuquerque, New Mexico, USA, January 2010.

**2009**

“Strengthening and health monitoring of bridges in New Mexico,” invited talk, ASCE New Mexico Chapter, Albuquerque, New Mexico, USA, October 2009.

“Next generation materials and structures,” invited talk, New Mexico Association of Structural Engineers, Albuquerque, New Mexico, USA, September 2009.

“Next generation nano-based materials for construction and infrastructure monitoring: A peek at 2050,” invited talk, Association of Young Engineers, Albuquerque, New Mexico, USA, August 2009.

**2008**

“Next generation nano-based materials for construction and infrastructure monitoring: A peek at 2030,” invited talk, Egyptian Petroleum Research Institute, Cairo, Egypt, December 2008.

“Structural health monitoring: from machine maintenance to machine intelligence,” invited talk, University of Notre Dame, South Bend, Indiana, USA, February 2008.

**2007**

“Towards intelligent structural health monitoring,” invited lecture, Sigma Xi, New Mexico Chapter, October 2007.

**2006**

“Integrative structural health monitoring research in New Mexico,” invited lecture, ASCE New Mexico Chapter, Las Cruces, New Mexico, USA, March 2006.

“Modeling creep of the medial collateral ligaments using fuzzy set theory,” invited lecture, Department of Orthopaedics, Health Science Center, University of New Mexico, August 2006.

**2005**

“High performance concrete: Fundamentals,” invited lecture, Department of Structural Engineering, Ain Shams University, Cairo, Egypt, June 2005.

“Research and development towards intelligent structural health monitoring,” invited lecture, Royal Military College of Canada, Kingston, Ontario, Canada, April 2005.

**2004**

“Artificial intelligence in structural engineering,” invited lecture, Technical University of Aachen, Aachen, Germany, July 2004.

## **OTHER TECHNICAL PRESENTATIONS**

**2019**

Innovative Mechanical Integrity Tests for Solution-mined Caverns Using Distributed Temperature Sensing (DTS) Technology”, *The Solution Mining Research Institute, SMR Spring 2019 Technical Conference, New Orleans, Louisiana, USA, April 2019.*

**2017**

“Improving fracture toughness of polymer concrete using carbon nanotubes,” 96th Transportation Research Board Annual Meeting, Washington, D.C., USA, January 2017.

**2015**

“Quantifying infrastructure resilience using structural health monitoring data,” NSF-funded US-EGYPT Workshop: Toward Resilient and Sustainable Infrastructure Development at the new Suez Canal region in Egypt, Cairo, Egypt, December 2015.

“Apparent vs. true bond strength of steel and polymer concrete with nanoalumina,” International Congress on Polymers in Concrete (ICPIC 2015), Singapore, October 2015.

“A new class of carbon nanotubes: polymer concrete with improved fatigue strength,” Fifth International Symposium on Nanotechnology in Construction (NICOM5), Chicago, Illinois, USA, May 2015.

“Correlating mechanical properties and C-S-H polymerization of hardened cement paste cured under high temperature and pressure,” Fifth International Symposium on Nanotechnology in Construction (NICOM5), Chicago, Illinois, USA, May 2015.

“Multi-scale viscoelastic characterization of synthetic calcium silicate hydrate (C-S-H),” Fifth International Symposium on Nanotechnology in Construction (NICOM5), Chicago, Illinois, USA, May 2015.

#### **2014**

“Correlating microstructural features and viscoelastic characteristics of C-S-H with low C/S ratio,” ACI session on Novel Characterization Techniques: Tribute to James Beaudoin, ACI Fall Convention, Washington, D.C., USA, October 2014.

“Alternative flexural strengthening for RC slabs and beams using CFRP and UHPC,” ACI session on Towards Sustainable Construction with FRP Composites, ACI Fall Convention, Washington, D.C., USA, October 2014.

#### **2013**

“Nano-creep of synthetic C-S-H produced using 1.5 and 0.7 CaO/SiO<sub>2</sub> mixture ratios,” International Conference on Creep, Shrinkage and Durability of Concrete, CONCREEP 09, MIT, Boston, Massachusetts, USA, September 2013.

“Creep of epoxy-clay nanocomposite at the FRP interface,” International Conference of Composite Science and Technology, Meo, M., ed., Sorrento, Naples, Italy, April 2013.

“Interlaminar fracture toughness of woven fabric composites reinforced with MWCNTs,” International Conference of Composite Science and Technology, Meo, M., ed., Sorrento, Naples, Italy, April 2013.

“Fatigue of glass fiber reinforced polymer (GFRP) incorporating carbon nanotubes,” International Conference of Composite Science and Technology, Meo, M., ed., Sorrento, Naples, Italy, April 2013.

#### **2011**

“Quantifying deflection variation in RC beams propagated from microstructural variability in concrete using homogenization technique,” Andy Scanlon Symposium, ACI Fall Convention, Cincinnati, Ohio, October 2011.

“Short and long term properties of self-consolidating concrete made using New Mexico aggregate,” ACI New Mexico Chapter, Albuquerque, New Mexico, USA, October 2011.

“Creep of fiber reinforced polymer-epoxy-concrete interface incorporating carbon nanotubes,” First Middle East Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures, SMAR2011, Dubai, United Arab Emirates, February 2011.

“Damage tracking in pipelines using smart sensor network,” First Middle East Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures, SMAR2011, Dubai, United Arab Emirates, February 2011.

“Sustainable structural health monitoring using field programmable gate array (FPGA) technology,” First Middle East Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures, SMAR2011, Dubai, United Arab Emirates, February 2011.

**2010**

“Fracture toughness of hydrated cement paste using nanoindentation,” 7th FRAMCOS Conference, Jeju, South Korea, May 2010.

**2008**

“Screening the significance of factors affecting concrete shrinkage,” International Conference on Creep, Shrinkage and Durability of Concrete, CONCREEP 08, Ise Shima, Japan, October 2008.

“Nano versus macro creep of concrete,” International Conference on Creep, Shrinkage and Durability of Concrete, CONCREEP 08, Ise Shima, Japan, October 2008.

“Realizing the possibility of concrete cracking,” 5th ASCE International Engineering and Construction Conference (IECC’5), Irvine, California, USA, August 2008.

“Hot-spot damage monitoring in aerospace composites using acoustic bandgap (ABG) sensors,” ASCE Earth & Space 2008, Long Beach, California, USA, March 2008.

**2007**

“Creep and shrinkage of self-compacting concrete: Preliminary results,” 12th International Colloquium on Structural and Geotechnical Engineering, Cairo, Egypt, December 2007.

“An inductive reasoning approach for fuzzy damage detection in structures,” 12th International Colloquium on Structural and Geotechnical Engineering, Cairo, Egypt, December 2007.

“Robustness to uncertainty in modelling deflection of reinforced concrete structures,” 12th International Colloquium on Structural and Geotechnical Engineering, Cairo, Egypt, December 2007.

“An inductive reasoning approach for damage detection in structural health monitoring,” 41st Annual Asilomar Conference on Signals, Systems, and Computers, Monterey, California, USA, November 2007.

“Investigating long-term behavior of epoxy at the concrete-FRP interfaces,” International Conference of FRP, Patras, Greece, July 2007.

“FRP for bridge strengthening in New Mexico,” 44th Paving Conference, Albuquerque, New Mexico, USA, January 2007.

“Structural health monitoring research for efficient structures,” Sandia National Laboratories, Wind Energy Group, Albuquerque, New Mexico, USA, January 2007.

## **2006**

“New sensors for damage detection using nano photonic bandgap materials,” 10th Arab Structural Engineering Conference, Kuwait City, Kuwait, November 2006.

“A nouvelle approach for assessing the possibility of damage in structures,” 10th Arab Structural Engineering Conference, Kuwait City, Kuwait, November 2006.

“Predicting the punching shear strength of interior slab-column connections using fuzzy systems,” Joint International Conference on Computing and Decision Making in Civil and Building Engineering, Montreal, Quebec, Canada, June 2006.

## **2005**

“A generic fuzzy metric for damage recognition in structural health monitoring systems,” IEEE Conference on Systems, Man, and Cybernetics, Big Island, Hawaii, USA, October 2005.

“Nano photonic sensors for damage diagnosis: An exploratory simulation,” IEEE Conference on Systems, Man, and Cybernetics, Big Island, Hawaii, USA, October 2005.

“Predicting shear cracking of prestressed concrete beams using fuzzy learning from examples,” Third International Conference on Construction Materials (CONMAT 05), Vancouver, Canada, August 2005.

“Interrelating creep and stress relaxation of medial collateral ligaments using a fuzzily modeled collagen fibre recruitment,” 12th International Conference on Computational Methods and Experimental Measurements, CMEM Valetta, Malta, June 2005.

## **2004**

“An innovative neuro-fuzzy model for predicting creep of the medial collateral ligament,” 5th International Symposium on Soft Computing for Industry, WAC 2004, Seville, Spain, June 2004.

“Automization of an INS/GPS integrated system using genetic optimization,” 5th International Symposium on Soft Computing for Industry, WAC 2004, Seville, Spain, June 2004.

“A fuzzy-aided wavelet damage recognition for intelligent structural health monitoring,” Second European Workshop on Structural Health Monitoring, Munich, Germany, July 2004.

“A next generation low-cost MEMS based sensor: Challenges for implementation in SHM systems,” Second Canadian Workshop on Structural Health Monitoring, Winnipeg, Canada, September 2004.

## **MEDIA CONTRIBUTIONS**

- Resources Radio Podcast, 2020, Can the Magic Glue of Cement Turn Green? with Mahmoud Taha

<https://www.resourcesmag.org/resources-radio/can-magic-glue-cement-turn-green-mahmoud-taha/>



## TEACHING EXPERIENCE AND ACTIVITIES

*Courses numbered 100–400 are primarily undergraduate classes. Courses numbered 500 are primarily graduate classes.*

### Courses Taught

CE 160	Civil Engineering Design	2021
CE 202	Statics	2012*
CE 302	Mechanics of Materials	2005, 2012*, 2015, 2016, 2018
CE 305	Civil Engineering Materials	2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2018
CE 310	Structural Design	2012
CVE 310	Structural Dynamics	2013*
CE 411/511	Design of Concrete Structures	2006, 2007, 2009, 2010, 2017
CE 424/524	Design of Steel Structures	2004, 2005, 2006, 2007, 2008, 2013*,2013
CE 506	Prestressed Concrete Design	2006, 2010, 2015, 2017*,2020
CE 548	Fuzzy Logic with Engineering Applications	2005, 2008
CE 598	Design of RC Structures with FRP	2004, 2011, 2012,2017
CE 598WM	Design of Masonry Structures	2008
CE 598FM	Fracture Mechanics of Engineering Materials	2009, 2011, 2016
CE 598	Structural Reliability	2008*
CE 598-002	Construction Materials	2016, 2017, 2019 (online)
CE 598-006	Infrastructure Resilience	2018,2020 (online)

### New Courses Developed & Taught at UNM

CE 598	Design of RC Structures with FRP	2004, 2011, 2012, 2017
CE 598WM	Design of Masonry Structures	2008
CE 598FM	Fracture Mechanics of Engineering Materials	2009, 2011, 2016
CE 598-002	Construction Materials for Managers	2016, 2017 (online)
CE 598-006	Infrastructure Resilience	2018, 2020 (online)

### Other Courses Developed

CUEB	Geology Applied to Engineering	2018
CUEB	Theory of Structural Steel Design	2019

*\*Indicates course taught as a visiting professor at another institute.*

### Teaching Evaluations from Students (UNM)

#### ICES Ratings (Scores Out of Possible 6.0)

#	Semester	Course	Number of students	ICES-Evaluation Summary	
				Course rating	Instructor rating
1	Spring 2004	Design of Metallic Structures	7	5.6	5.7
1	Spring 2004	Design of Metallic Structures	1	6.0	6.0
2	Fall 2004	Design of FRP Structures	6	5.0	5.5
3	Fall 2004	Civil Engineering Materials	27	4.7	5.0
4	Spring 2005	Design of Metallic Structures	5	5.0	4.3
4	Spring 2005	Design of Metallic Structures	3	5.0	5.7
5	Spring 2005	Fuzzy Logic with Applications	8	5.5	5.5
6	Spring 2005	Mechanics of Materials	20	5.3	5.5
7	Fall 2005	Civil Engineering Materials	23	5.2	4.8
8	Spring 2006	Civil Engineering Seminar	18	N/A	N/A

9	Spring 2006	Design of Metallic Structures	5	5.3	5.0
9	Spring 2006	Design of Metallic Structures	4	5.8	5.5
10	Fall 2006	Civil Engineering Materials	26	5.0	5.1
11	Fall 2006	Design of Concrete Structures	9	5.5	5.7
11	Fall 2006	Design of Concrete Structures	3	5.0	5.7
12	Spring 2007	Design of Metallic Structures	3	6.0	6.0
12	Spring 2007	Design of Metallic Structures	5	5.6	5.6
13	Fall 2007	Design of Concrete Structures	9	5.0	4.8
13	Fall 2007	Design of Concrete Structures	3	5.0	5.5
14	Fall 2007	Civil Engineering Materials	43	5.4	5.5
15	Spring 2008	Design of Timber and Masonry	9	5.0	5.5
<b>Mean value (out of 6.0 maximum)</b>				<b>5.3 (89%)</b>	<b>5.4(90%)</b>

**IDEA RATINGS (Scores Out of Possible 5.0)**

#	Semester	Course	Number of students	IDEA Summary	
				Course rating	Instructor rating
16	Fall 2008	Civil Engineering Materials	47	3.9	4.2
17	Spring 2009	Design of Concrete Structures	10	5.0	4.9
17	Spring 2009	Design of Concrete Structures	10	5.0	5.0
18	Spring 2009	Fracture Mechanics	12	4.0	4.8
19	Fall 2009	Civil Engineering Materials	44	4.1	4.5
20	Spring 2010	Design of Concrete Structures	4	5.0	5.0
20	Spring 2010	Design of Concrete Structures	6	4.0	4.2
21	Fall 2010	Civil Engineering Materials	45	4.1	4.4
22	Fall 2010	Prestressed Concrete Design	13	4.6	4.8
23	Spring 2011	Fracture Mechanics	14	4.6	4.9
24	Fall 2011	Civil Engineering Materials	40	4.3	4.7
25	Spring 2012	Structural Design	20	---	---
26	Spring 2012	RC Design with FRP	7	4.9	4.9
27	Fall 2013	Civil Engineering Materials	50	3.9	4.2
28	Fall 2013	Design of Steel Structures	18	4.5	4.7
28	Fall 2013	Design of Steel Structures	4	4.7	5.0
29	Fall 2014	Design of Steel Structures	28	4.3	4.5
29	Fall 2014	Design of Steel Structures	10	4.7	4.6
30	Spring 2015	Prestressed Concrete Design	15	4.6	4.6
31	Fall 2015	Mechanics of Materials	46	4.4	4.6
32	Spring 2016	Fracture Mechanics	12	4.2	4.0
33	Fall 2016	Mechanics of Materials	50	4.7	4.4
34	Spring 2017	Design of Concrete structures	13	5.0	5.0
34	Spring 2017	Design of Concrete structures	5	4.5	4.5
35	Sum. 2017	Construction Materials - Online	5	4.2	4.2
36	Fall 2017	RC Design with FRP	11	4.7	4.5
37	Spring 2018	Mechanics of Materials	26	3.8	4.4
38	Sum. 2018	Construction Materials - Online	11	4.1	4.1
39	Fall 2018	Infrastructure Materials Science	68	4.0	4.3
40	Fall 2018	Infrastructure Resilience	2	4.0	4.2
41	Summer 2019	Construction Materials - Online	5	4.5	4.5
42	Fall 2019	Infrastructure Materials Science	57	4.4	4.6
43	Spring 2020	Prestressed Concrete Design	7	4.0	4.1
44	Summer 2020	Construction Materials - Online	5	4.3	4.3
45	Summer 2020	Mechanics of Materials	17	4.0	4.0
46	Fall 2020	Design of Timber and Masonry	6	4.2	4.2
47	Spring 2021	Civil Engineering Design – CE 160	30	---	---
<b>Mean value (out of 5.0 maximum)</b>				<b>4.4 (88%)</b>	<b>4.5 (90%)</b>

**Teaching Evaluations from Students (American University of Sharjah, UAE)**

**(Scores Out of Possible 5.0)**

#	Semester	Course	Number of students	Summary	
				Course rating	Instructor rating
1	Fall 2012	CVE 220 - Engineering Statics (Civil)	20	4.0	4.3
2	Fall 2012	MCE 220 – Engineering Statics (Mechanical)	30	4.5	4.6
3	Fall 2012	CVE 223- Mechanics of Materials	12	4.1	4.3
4	Spring 2013	CVE 310 – Structural Dynamics	28	4.1	4.3
5	Spring 2013	CVE 312 – Structural Steel Design	18	4.4	4.5
6	Spring 2013	CVE 312 – Structural Steel Design	16	4.4	4.5
<b>Mean value (out of 5.0 maximum)</b>				<b>4.3 (85%)</b>	<b>4.4 (88%)</b>

## SUPERVISION ACTIVITIES

### Graduate Students Advised

#	Advisee	Degree	Year	Department	Gender	Current Placement
1	S. Horton	M.Sc	2006	Civil Engineering	M	CH2M Hill, OR
2	E. Altunok	M.Sc	2006	Electrical Comp. Eng	M	Private business, Turkey
3	P. Meshgin*	M.Sc	2006	Civil Engineering	F	University of Utah, UT
4	M. McCuskey	M.Sc	2007	Civil Engineering	F	Sandia National Laboratories, NM
5	G.B. Farfan	M.Sc	2008	Electrical Comp. Eng	M	Consulting, Santa Fe, NM
6	M.P. Sheyka	M.Sc	2008	Civil Engineering	M	Ball Aerospace, NM
7	C. Salas*	M.Sc	2008	Mechanical Engineering	F	UNM School of Medicine
8	R. Zaragoza	M.Sc	2009	Civil Engineering	M	U.S. Air Force, Germany
9	J. J. Kim*	Ph.D	2009	Civil Engineering	M	Kangnam University, South Korea
10	A. Reinhardt	M.Sc	2009	Civil Engineering	M	Patent attorney, NC Chapel Hill
11	M. Azarbayejani*	Ph.D	2009	Civil Engineering	M	New Mexico Tech, NM
12	C. Murray	M.Sc	2010	Civil Engineering	M	Consulting, NM
13	A. Garner	M.Sc	2011	Civil Engineering	M	Sandia National Laboratories, NM
14	R. Grahm	M.Sc	2011	Civil Engineering	M	Tower Engineering, NC
15	J. Hayes	M.Sc	2011	Civil Engineering	M	AMEC, NM
16	E. Foley	M.Sc	2011	Civil Engineering	F	Palo Verde Plant, AZ
17	R. Schmalzer	M.Sc	2011	Civil Engineering	M	ACTA Inc., CA
18	M. Grigoriev	M.Sc	2011	Mechanical Engineering	M	Air Force Lab, NM
19	M. P. Sheyka	Ph.D	2011	Mechanical Engineering	M	Ball Aerospace, NM
20	E. Soliman*	Ph.D	2011	Civil Engineering	M	Assiut University, Egypt
21	T. Fan*	Ph.D	2012	Civil Engineering	M	China
22	M. Jalalpour	Ph.D	2012	Civil Engineering	M	Structural Engineers, MD
23	S. Abobakr	M.Sc	2013	Civil Engineering	M	Ph.D student, NC State
24	S. Neidigk	M.Sc	2013	Civil Engineering	M	Sandia National Laboratories, NM
25	A. Griffin	M.Sc	2013	Civil Engineering	M	QPEC Consultants, NM
26	S. Daghash	M.Sc	2013	Civil Engineering	M	Consulting, Norfolk, VA
27	C. Salas*	Ph.D	2014	Biomedical Engineering	F	UNM School of Medicine
28	M. Begaye	M.Sc	2014	Civil Engineering	F	U.S. Army Corps of Engineers
29	M. Genedy	M.Sc	2014	Civil Engineering	M	Postdoc, UNM
30	J. Brantley	M.Sc	2014	Biomedical Engineering	M	Ph.D student, U. Houston
31	M. Peterson	M.Sc	2014	Civil Engineering	M	Sandia National Laboratories, NM
32	S. Abobakr	M.Sc	2015	Nanoscience	M	Ph.D student, NC State
33	R. Chennareddy	M.Sc	2015	Civil Engineering	M	Ph.D student. UNM
34	N. Trujillo	M.Sc	2016	Civil Engineering	F	Consulting, CA
35	A. Douba	M.Sc	2017	Civil Engineering	M	Ph.D student, Columbia University
36	E. Borowski	M.Sc	2017	Civil Engineering	F	Ph.D student, Northwestern
37	M. Maadandar*	M.Sc	2017	Civil Engineering	F	SIPI/City of Albuquerque
38	A. Garner	M.Sc	2017	Civil Engineering	F	Sandia National Laboratories, NM
39	M. Genedy	Ph.D	2018	Civil Engineering	M	Postdoc, UT Austin
40	M. Scherbarth	Ph.D	2018	Mechanical Engineering	M	Air Force Research Lab
41	C. Rusch	M.Sc	2018	Civil Engineering	M	Kiewit, Denver, CO
42	J. Leyba	M.Sc	2018	Civil Engineering	M	Kiewit, Denver, CO
43	R. Chennareddy	Ph.D	2019	Civil Engineering	M	Dibble Engineering, Phoenix, AZ
44	J. Starr	M.Sc	2019	Civil Engineering	M	Luchini-Trujillo St. Engineers, NM
45	S. Vemuganti	Ph.D	2021	Civil Engineering	F	TBD
46	A. Padilla	M.Sc.	2021	Civil Engineering	F	Los Alamos National Lab
47	D. H. Murcia	Ph.D	Exp. 2021	Civil Engineering	M	---
48	P. Raby	M.Sc	Exp. 2021	Civil Engineering	F	---
49	M. Jaradat	Ph.D	Exp. 2021	Civil Engineering	M	---
50	Y. Yang	Ph.D	Exp. 2022	NSMS	M	---
51	M. A. Najvani	Ph.D	Exp. 2023	Civil Engineering	M	---
52	N. D. McIver	Ph.D	Exp. 2023	Biomedical Engineering	F	---

Total graduate students advised: 52. Graduated: 46 (35 M.Sc, & 11 Ph.D).

\*Holds faculty position.

**Main Adviser, Completed Ph.D. Dissertations***\*Distinction awarded.*

1. Kim, J. J., *Uncertainty Quantification in Serviceability of Reinforced Concrete Structures*, 2009.\*
2. Azarbayejani, M., *Optimal Sensor Network for Efficient Structural Health Monitoring with Field Application to A Reinforced Concrete Bridge on I-40*, 2009.\*
3. Soliman, E., *Next Generation Fiber Reinforced Composites Incorporating Carbon Nanotubes*, November 2011.\*
4. Sheyka, M., *A Homogenization Approach for Design and Simulation of Blast Resistant Composites*, November 2011.\*
5. Fan, T., *Concrete Microstructure Homogenization Technique with Applications to Model Concrete Serviceability*, March 2012.
6. Jalalpour, M., *Structural Health Monitoring of Bolted Joints Using Ultrasonic Signals and Thermal Resistance*, April 2012.\*
7. Salas, C., *The Trapeziometacarpal Joint: Tissue Characterization and Surgical Techniques for Treatment of Osteoarthritis*, Biomedical Engineering, April 2014.\*
8. Scherbarth, M., *Engineering Viscoelastic Behavior of Carbon Fiber Reinforced Polymer Composites Using Nanoparticles for Controlling Passive Deployment of Aerospace Structures*, Mechanical Engineering, October 2018.
9. Genedy, M., *An Engineered Fit-for-Purpose Polymer Nanocomposite Seal for Wellbore Integrity*, Civil, Construction & Environmental Engineering. October 2018.\*
10. Chennareddy, R., *Retrofit of Corroded Corrugated Metal Culverts Using GFRP Slip-Liner*, Civil, Construction & Environmental Engineering. November 2019.
11. Vemuganti, S., *Pseudo-Ductile 3D Printed Fiber Reinforced Polymer Composites*, Civil, Construction & Environmental Engineering. April 2021\*.

**Main Adviser, Completed MS Theses***\*Distinction awarded.*

1. Horton, S., *A Neural Wavelet Module for Intelligent Damage Detection in SHM*, 2006.
2. Altunok, E., *Fuzzy and Possibility Methods for Damage Detection in Structural Health Monitoring*, 2006.
3. Meshgin, P., *Creep of Epoxy at the Concrete-Fiber Reinforced Polymer (FRP) Interfaces*, 2007.
4. McCuskey, M., *Structural Damage Classification Using Optimization of a Neural-Wavelet Module and Possibility Fusion*, 2007.\*
5. Farfan, B., *Optimization of Photonic Crystals: Methods and Applications*, 2008.\*
6. Salas, C., *A Biomechanical Comparison of Locking Plates Contrasted with Conventional Treatment of Distal Femur Fracture*, 2008.\*
7. Sheyka, M., *Analytical and Experimental Investigations of Photonic Crystals for Sub-Micron Damage Detection*, 2008.\*
8. Zargoza, R., *Review of Design of Cold Formed Steel Stud Walls* (project), 2009.
9. Reinhardt, A., *Macro and Nanoscale Creep of Self-Consolidating Concrete*, 2009.\*
10. Murray, C., *Analysis of Wood Shear Walls Using Linear Elastic FE Method* (project), 2010.
11. Schnalzer, R., *Acoustic Bandgap Sensors for Hot Spot Damage Monitoring*, 2011.
12. Hayes, J., *Short and Long Term Properties of Self Consolidating Concrete (SCC)*, 2011.
13. Grahm, R., *Creep and Fracture of Self Consolidating Concrete Incorporating Fly Ash*, 2011.

14. Foley, E., *Synthesis and Nano-mechanical Characterization of Calcium Silicate Hydrates (CSH)*, 2011.\*
15. Garner, A., *Strengthening of RC Slabs Using a Combination of CFRP and UHPC*, 2011.\*
16. Girgoriev, M. M., *Manufacturing Thin Composite Laminates for High Strain Testing and Nonlinear Elastic Constitutive Modeling*, 2011.
17. Aboubakr, S. H., *Epoxy-Clay Nanocomposite for Carbon Fiber Reinforced Polymer Applications using Nanoclay*, 2013.\*
18. Griffin, A., *Significance of Incorporating Nanosilica in Type G Oil Well Cement Pastes*, 2013.
19. Neidigk, S., *Detection and Characterization of Impact Damage in Carbon Fiber Aircraft Fuselage Structure*, 2013.
20. Daghash, S. M., *Next Generation Polymer Concrete Incorporating Carbon Nanotubes*, 2013.\*
21. Genedy, M., *A New CFRP-UHPC System for Strengthening Reinforced Concrete T-Beams*, 2014.\*
22. Begaye, M., *Synthesis and Multi-Scale Characterization of Calcium Silicate Hydrate at Multiple CaO/SiO<sub>2</sub> Mixture Ratios*, 2014.
23. Brantley, J., *A Biomechanical Analysis of One-Third Tubular Plates for the Treatment of Benign Lesions in the Distal Femur*. 2014.\*
24. Peterson, M. E., *High Shear Strain Characterization of Plain Weave Fiber Reinforced Lamina*, 2014.\*
25. Aboubakr, S. H., *Mechanical Characterization of Cell Silica Bio-composite, Nanoscience and Microsystems*, 2015.\*
26. Chennareddy, R., *Examining the Performance of GFRP Surface Mounted Reinforcement with Beam Confinement*, 2015.
27. Trujillo, N., *Mix Design and Mechanical Characterization of Stabilized Compressed Earth Blocks and Assemblies for the Jemez Pueblo in New Mexico*, 2016.
28. Borowski, E., *Viscoelastic Effects in Deployable Carbon Fiber Reinforced Polymer High Strain Composite Tape Springs*, 2017.\*
29. Garner, A., *Viscoelastic Behavior of Carbon Fiber Composites Incorporating Nanomaterials*, Spring 2017.
30. Maadandar, M., *A New Structural Composite Using Recycled Carbon Fiber Reinforced Polymer*, Spring 2017.
31. Douba, A., *Mechanical Characterization of Polymer Concrete with Nanomaterials*, Spring 2017.\*
32. Rusch, C., *Correlating Damage and Permeability of Concrete and Brittle Rock Using the Brazilian Indirect Tension Test*, August 2018.
33. Leyba, J., *Modeling Damage and Permeability in Concrete and Rock Using the Finite-Discrete Element Method*, August 2018.
34. Starr, J., *Synthesis and Characterization of Polymer-Modified Calcium Silicate Hydrate for Wellbore Applications*, November 2019.

**Member of Graduate Advising Committee**

	<b>Advisee</b>	<b>Degree</b>	<b>Year</b>	<b>Department</b>	<b>Main Supervisor</b>
1	J. Brown	Ph.D	2004	Civil Engineering	A. Maji
2	D. Harp	M.Sc	2005	Civil Engineering	J. Stormont
3	Y. Lee	M.Sc	2006	Civil Engineering	W. Gerstle
4	G. Urgessa	Ph.D	2006	Civil Engineering	A. Maji
5	J. Robbins	Ph.D	2006	Mech. Engineering	T. Khraishi
6	G. Chavez	Ph.D	2007	Civil Engineering	T. Ross
7	P. Sridhar	Ph.D	2007	Electrical Comp. Eng.	M. Jamshidi
8	J. E. A. Gonzalez	M.Sc	2007	Civil Engineering	W. Gerstle
9	S. McEntire	Ph.D	2008	Mech. Engineering	Y. L. Shen
10	M. Higgins	Ph.D	2008	Electrical Comp. Eng.	C. Christodoulou
11	C. Ortega	M.Sc	2008	Civil Engineering	W. Gerstle
12	M. F. Su	Ph.D	2008	Electrical Comp. Eng.	C. Christodoulou
13	J. Baranes	M.Sc	2008	Civil Engineering	A. Maji
14	R. Rammohan	Ph.D	2010	Computer Science	J. Luger
15	N. Xu	Ph.D	2011	Electrical Comp. Eng.	C. Christodoulou
16	B. Vernon	M.Sc	2011	Civil Engineering	A. Maji
17	A. Harnovar	M.Sc	2011	Civil Engineering	A. Maji
18	S. Chapman	M.Sc	2011	Civil Engineering	W. Gerstle
19	A. Rahman	M.Sc	2012	Civil Engineering	W. Gerstle
20	H. Sobien	M.Sc	2012	Civil Engineering	R. Tarefder
21	A. Carbera	M.Sc	2012	Civil Engineering	R. Tarefder
22	E. Zuraiqi	Ph.D	2012	Electrical Comp. Eng.	C. Christodoulou
23	M. Neidigk	Ph.D	2012	Mech. Engineering	Y. L. Shen
24	A. Torres	Ph.D	2013	Civil Engineering	A. Maji
25	K. N. Cicotte	Ph.D	2013	Biomedical Engineering	E. Dirk
26	G. Barlas	M.Sc	2013	Civil Engineering	R. Tarefder
27	M. T. Weldegiorgis	Ph.D	2013	Civil Engineering	R. Tarefder
28	M. Cordova	M.Sc	2014	Mechanical Engineering	Y. L. Shen
29	J. Lawrance	Ph.D	2014	Electrical Comp. Eng.	C. Christodoulou
30	S. Gomez	M.Sc	2015	Civil Engineering	J. Stormont
31	A. Suszko	Ph.D	2015	Mechanical Engineering	M. El-Genk
32	S. McVey	M.Sc	2015	Civil Engineering	W. Gerstle
33	S. Vemuganti	M.Sc	2015	Civil Engineering	W. Gerstle
34	G. Ortiz	M.Sc	2016	Mech. Engineering	C. Salas
35	R. Tufaro	M.Sc	2016	Mech. Engineering	C. Salas
36	A. Mannan	Ph.D	2017	Civil Engineering	R. Tarefder
37	R. Piat	M.Sc	2016	Mech. Engineering	M. Tehrani
38	A. Jwary	M.Sc	2017	Civil Engineering	A. Maji
39	J. Gomez	M.Sc	2017	Civil Engineering	F. Moreu
40	A. Mannan	Ph.D	2017	Civil Engineering	R. Tarefder
41	M. Anderson	M.Sc	2017	Civil Engineering	S. Bogus Halter
42	N. van de Werken	M.Sc	2017	Mechanical Engineering	M. Tehrani
43	S. G. Fernandez	M.Sc	2017	Civil Engineering	J. Stormont

44	J. Gomez	M.Sc	2018	Mechanical Engineering	C. Salas
45	N. van de Werken	Ph.D.	2019	Mechanical Engineering	M. Tehrani
46	S. Boyce	M.Sc	2019	Civil Engineering	J. Stormont
47	D. Maharjan	M.Sc	2019	Civil Engineering	F. Moreu
48	L. Jaramillo	Ph.D.	2019	Civil Engineering	M. Stone
49	I. Anwar	Ph.D.	2021	Civil Engineering	J. Stormont

### Member of Graduate Advising or Examining Committee – Other Institutions

	Advisee	Degree	Year	University	Country
1	N. Y. Osman	Ph.D	2007	Swinburne Univ.of Technology	Australia
2	Mona A. Ahmed	M.Sc	2011	Ain Shams University	Egypt
3	Hamdy M. Naguib	M.Sc	2012	Al Azhar University	Egypt
4	Ramdan M. A. Rabo	M.Sc	2012	Monofia University	Egypt
5	G. A. Al-Shamsi	M.Sc	2013	American University of Sharjah	UAE
6	F. Abdelghafar	M.Sc	2014	Bani Seuif University	Egypt
7	Mona A. Ahmed	Ph.D	2015	Ain Shams University	Egypt
8	H. Hassan	Ph.D	2015	Ain Shams University	Egypt
9	Hamdy M. Naguib	Ph.D	2012	Ain Shams University	Egypt
10	S.H. Mahdavi	Ph.D	2015	University of Malaya	Malaysia
11	J. S. S. Jegadesh	Ph.D	2016	NIT, Tiruchirappalii	India
12	Mohamed Soliman	Ph.D	2017	Memorial University	Canada
13	S. K. U. Rehman	Ph.D	2018	University of Malaya	Malaysia
14	Eman Oman Taha	Ph.D	2018	Cairo University	Egypt
15	Yasmin Abd El-Aziz	Ph.D	2018	Ain Shams University	Egypt
16	Mohamed A.B. Ibrahim	MSc	2019	Qatar University	Qatar
17	Vivek Chauchan	PhD	2020	NIT, Hamirpur	India
18	Akram Abd Elmaksod	PhD	2020	Ain Shams University	Egypt
19	Ahmed Bediwy	PhD	2021	University of Manitoba	Canada
20	Abdalla Hussein	MS	2021	United Arab Emirates University	UAE
21	Ismail Ahmed Amer	PhD	2021	Aim Shams University	Egypt

### Undergraduate Research Students Supervised

	Student	Degree	Year	Dept., Final Degree (Year)	Gender
1	M. Sheyka	B.Sc	2006	Mechanical Engineering, Ph.D (2011)	M
2	M. McCuskey	B.Sc	2006	Civil Engineering, MSc (2007)	F
3	Z. Williams	B.Sc	2007	Civil Engineering, BSc (2007)	M
4	A. Reinhardt	B.Sc	2007	Civil Engineering, MSc (2009)	M
5	R. Schnalzer	B.Sc	2006	Civil Engineering, MSc (2011)	M
6	B. Garner	B.Sc	2009	Civil Engineering, MSc (2011)	M
7	E. Foley	B.Sc	2009	Civil Engineering, MSc (2011)	F
8	J. Hayes	B.Sc	2009	Civil Engineering, MSc (2011)	M
9	R. Grahn	B.Sc	2009	Civil Engineering, MSc (2011)	M
10	M. Dunlap	B.Sc	2012	Civil Engineering, BSc. (2012)	M

11	D. Bonham	B.Sc	2012	Civil Engineering, BSc. (2012)	M
12	S. Neidigk	B.Sc	2009	Civil Engineering, MSc (2012)	M
13	M. Begaye	B.Sc	2013	Civil Engineering, MSc (2013)	F
14	E. Borowski	B.Sc	2013	Civil Engineering, MSc (2013)	F
15	E. Twitchell	B.Sc	2014	Civil Engineering, MSc (2014)	F
16	J. Libya	B.Sc	2016	Civil Engineering, MSc (2018)	M
17	C. Rusch	B.Sc	2016	Civil Engineering, MSc (2018)	M
18	J. Starr	B.Sc	2018	Civil Eng., MSc (2019)	M
19	J. Martinez	B.Sc	2019	Civil Eng., MEng (2020)	M
20	P. Raby	B.Sc	2019	Civil Eng., MSc (2021)	F
21	A. Padilla	B.Sc.	2019	Civil Eng., MSc (2021)	F
22	J. Yang	B.Sc.	2022	Civil Eng., MSc (expected 2024)	M
23	L. Hutchinson	B.Sc.	2021	Civil Eng., MSc (expected 2022)	M

### Postdoctoral Fellows Supervised

	<b>Fellow</b>	<b>Graduating School</b>	<b>Period</b>
1	J. Lucero	University of New Mexico	2004–2004
2	S. Taheri	University of New Mexico	2005–2005
3	I. Adam	Okayama University, Japan	2006–2006
4	K. K. Choi	Seoul National University, Korea	2005–2007
5	U. Kandil	Penn State University	2010–2010
6	J. J. Kim	University of New Mexico	2009–2012
7	A. B. Altunc	Arizona State University	2008–2011
8	E. Soliman	University of New Mexico	2011–2012, 2014–2015, 2018
9	A. Khan	Virginia Tech	2015–2016
10	M. Emiroglu	Duzce University, Turkey	2015–2017
11	X. Guo	Hibben University, China	2017–2018
12	L. Wang	Hibben University, China	2018–2019
13	B. Comak	Duzce University, Turkey	2018–2019
14	E. Mohamed	Construction Research Institute, Egypt	2019–2019
15	M. Genedy	University of New Mexico	2019–2019
16	M. Abdellatef	Rensselaer Polytechnique Institute	2020-present

### Short Courses Attended

- Academic leadership workshop, University of New Mexico, 2014–2015
- Introducing Sustainability to the Curriculum, Syracuse University, New York, June 2011
- ASEE Effective Teaching Workshop, Salt Lake City, Utah, June 2004
- Workshop on Research Fund Management, University of New Mexico, April 2004



## PROFESSIONAL LEADERSHIP AND SERVICE

### Editorial Positions and Assignments

2021–present	Section Editor, <i>ASCE Journal of Materials in Civil Engineering</i>
2019–present	Associate Editor, <i>Natural Hazards Review</i>
2019–present	Editorial Board member, <i>ASCE Journal of Composites for Construction</i>
2015–2020	Associate editor, <i>ASCE Journal of Materials in Civil Engineering</i>

### Boards Served On

November 2016–present	Advisory board member, <i>Preprints</i> by MDPI
January 2016–present	Board member, International Congress of Polymers in Concrete

#### 2018

Editor, *Proceedings of the International Congress on Polymers in Concrete (ICPIC 2018)*, Washington, D.C., USA. Springer, 757 pp.

#### 2017

Guest editor, *Fibers* special issue: “Fiber Reinforced Polymers (FRP) for Infrastructure Applications.”

#### 2011

Guest editor, *Frontiers in the Use of Polymers in Concrete*, ACI Special Publication SP-278, March 2011.

#### 2009

Guest editor (with K. Sobolev), *Nanotechnology of Concrete: The Next Big Thing Is Small*, ACI Special Publication SP-267, October 2009.

Guest editor (with M. Al-Haik), *International Journal of Materials and Structural Integrity*, Vol. 3, No. 2/3, pp. 99-260 (special issue on “Nanotechnology for Structural Materials”).

Guest editor (with A. Mosallam), *Smart Structures and Systems*, Vol. 5, No. 4, pp. 317-495 (special issue on “Current Advances of Structural Health Monitoring”), Techno Press, July 2009.

#### 2003

Editor (with A. S. El-Dieb and S. L. Lissel), *Proceedings of the International Conference on Performance of Construction Materials in The New Millennium*, ICPCM, Cairo, Egypt, Vols. 1 and 2, ISBN:977-237-192/193.

### Institutes Collaborated With

- American University of Sharjah, Sharjah, United Arab Emirates
- Columbia University at The City of New York, USA
- Egyptian Petroleum Research Institute, Egypt
- George Mason University, Fairfax, Virginia, USA
- King Fahd University of Petroleum & Minerals, Saudi Arabia
- Missouri University of Science and Technology, Rolla, Missouri, USA

- Qatar University, Qatar
- Sejong University, South Korea
- Soongsil University, South Korea
- Texas A&M University, College Station, Texas, USA
- United Arab Emirates University, United Arab Emirates
- University of Aachen, Germany
- University of California, Berkeley, USA
- University of Idaho, Moscow, Idaho, USA
- University of Illinois Urbana-Champaign, USA
- University of Louisiana, Lafayette, Louisiana, USA
- University of Manitoba, Winnipeg, Canada
- University of Michigan, Ann Arbor, USA
- University of Nevada, Reno, USA
- University of New Castle, Australia
- University of Texas at San Antonio, USA
- University of Utah, Salt Lake City, Utah, USA

#### **Reviewer, International Funding Agencies**

- Austrian Science Fund (FWF), Austria (2021)
- National Environment Agency, Singapore (2018)
- National Center of Science and Technology Evaluation, Kazakhstan (2017, 2018)
- National Research Foundation of South Africa, South Africa (2014, 2017)
- Swiss National Science Foundation, Switzerland (2013, 2017)
- National Sciences and Engineering Research Council of Canada (2004, 2009, 2017)
- Foundation for Science and Technology (FCT), Portugal (2012)
- National Council for Research and Development, Romania (2011)
- Technology Foundation STW, the Netherlands (2009, 2010)

#### **Reviewer, United States Research Funding**

- National Science Foundation (2008, 2009, 2011, 2013, 2015, 2016, 2019, 2021)
- Department of Energy – Small Business Innovative Research program (2015, 2019)
- Nuclear Energy University Program (2012, 2014, 2016)
- State of Louisiana – EPSCoR (2009, 2015)
- Oak Ridge Associate Universities (2020, 2021)
- Idaho National Laboratory (2014)
- U.S. Army Corps of Engineers – Engineer Research and Development Center (2011, 2014)
- Oak Ridge National Laboratory (2010)
- State of Nevada – EPSCoR Research Chair Review (2010)
- U.S. Department of Energy – EPSCoR (2009, 2010)
- Army Research Office (2008, 2009)
- State of Nevada – EPSCoR (2009)

### **Reviewer, National Awards**

School of Engineering Research Award, University of Nevada, Las Vegas, USA (2018)

### **Tenure and Promotion Reviewer**

- George Mason University, Fairfax, Virginia, USA
- Indiana University – Purdue University Fort Wayne, USA
- Memorial University, Newfoundland, Canada
- Missouri University of Science and Technology, Rolla, Missouri, USA
- New Jersey Institute of Technology, Newark, New Jersey, USA
- Rensselaer Polytechnic Institute (RPI), New York, USA
- University of Alabama at Birmingham, USA
- University of Manitoba, Winnipeg, Canada
- University of Miami, Coral Gables, Florida, USA
- University of Nevada, Las Vegas, USA
- University of South Florida, Tampa, Florida, USA
- University of Texas at El Paso, USA
- University of Wisconsin-Milwaukee, USA
- Villanova University, Villanova, Pennsylvania, USA

### **Reviewer, Academic Journals**

- *ACI Materials Journal*
- *ACI Structural Journal*
- *Canadian Journal of Civil Engineering*, NRC Research Press, Canada
- *Cement and Concrete Composites*, Elsevier
- *Composite Structures*, Elsevier
- *Composites Part B: Engineering*, Elsevier
- *Construction and Building Materials*, Elsevier
- *Engineering Structures*, Elsevier
- *International Journal of Impact Engineering*, Elsevier
- *Journal of Composites for Construction*, ASCE
- *Journal of Materials in Civil Engineering*, ASCE
- *Journal of Structural Engineering*, ASCE
- *Materials and Structures*, Springer, RILEM, France
- *Materials*, MDPI, Switzerland
- *Polymers*, MDPI, Switzerland
- *Sensors*, MDPI, Switzerland
- *Smart Materials and Structures*, IOPscience
- *Smart Structures and Systems*, Techno Press, Korea
- *Structural Health Monitoring*, Sage Publications

**Member, International Technical Committees and Other Organizing Roles for Conferences**

- 15th International Conference on Concrete Engineering and Technology (CONCENT 2020), Kuala Lumpur, Malaysia, July 2020
- 2<sup>nd</sup> International Conference on Nanotechnology of Cement and Concrete, TRB, Irvin, California, June 2020.
- 6th International Symposium on Nanotechnology in Construction, (NICOM6), Hong Kong, China, December 2018
- International Advisory Board, 14th International Conference on Concrete Engineering and Technology, Kuala Lumpur, Malaysia, August 2018
- Chairman of Organizing Committee, International Congress on Polymers in Concrete (ICPIC 18), Washington, D.C., USA, May 2018
- 4th Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures (SMAR 2017), Zürich, Switzerland, September 2017
- Chairman and Organizer, NSF-funded US-EGYPT Workshop: Toward Resilient and Sustainable Infrastructure Development at the new Suez Canal region in Egypt, Cairo, Egypt, December 2015
- Session Chairman, International Congress on Polymers in Concrete (ICPIC 2015), Singapore, October 2015
- International Scientific Committee, 3rd Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures (SMAR 2015), Antalya, Turkey, September 2015
- Session Chairman, 5th International Symposium on Nanotechnology in Construction (NICOM5), Chicago, Illinois, USA, May 2015
- International Scientific Committee, 5th International Symposium on Nanotechnology in Construction, (NICOM5), Chicago, Illinois, USA, May 2015
- International Scientific Committee, International Conference on Sustainable Structures and Smart Materials, German University in Cairo, Egypt, May 2014
- International Scientific Committee, International Congress on Materials and Structural Stability, Rabat, Morocco, November 2013
- 2nd Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures (SMAR 2013), Istanbul, Turkey, September 2013
- Session Chairman, 9th International Conference of Composite Science and Technology, Naples, Italy, April 2013
- 1st Middle East Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures (SMAR 2011), Dubai, United Arab Emirates, February 2011
- Session Chairman, “Space Structures,” ASME 2010 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS 2010), Philadelphia, Pennsylvania, USA, September 2010
- 8th International Masonry Conference, Dresden, Germany, July 2010
- Session Chairman, FraMCoS-7 International Conference, Jeju, South Korea, May 2010
- Session Chairman, “Frontiers in the Use of Polymers in Concrete,” American Concrete Institute Spring Convention, Chicago, Illinois, USA, March 2010
- Session Chairman, “Nanotechnology for Concrete: The Next Big Thing Is Small,” American Concrete Institute Fall Convention, New Orleans, Louisiana, USA, November 2009
- 11th Canadian Masonry Conference, Toronto, Canada, June 2009

- International Scientific Committee, 5th ASCE International Engineering and Construction Conference (IECC'5), Irvine, California, USA, August 2008
- 12th International Colloquium on Structural and Geotechnical Engineering, Cairo, Egypt, December 2007
- International Conference on Construction Materials Performance, Vancouver, 2005
- World Automated Congress, Budapest, Hungary, June 2005
- 10th Canadian Masonry Conference, Calgary, Canada, June 2005
- International Scientific Committee, Integrated Life Cycle Design of Structures (ILCDES) Symposium, Kuopio, Finland, December 2003

### **International Conferences and Special Sessions Organized**

- Co-Chairman and Organizer, ASCE Infrastructure Resilience Division (IRD) Forum on Emerging Technology for Infrastructure Resilience, One Day Research Forum, Zoom, May 25, 2021. (Co-Chair: Ricardo Medina, SGH)
- Co-Chairman and Organizer, 4<sup>th</sup> UNM Resilience Colloquium, Albuquerque, New Mexico, USA, August 2019
- Chairman and Organizer, 3rd UNM Resilience Colloquium: “Challenges of Natural Stresses: Resilience Engineering for Natural and Built Environments,” Albuquerque, New Mexico, USA, August 2018
- Chairman and Organizer, International Congress on Polymers in Concrete (ICPIC-16), Washington, D.C., USA, May 2018
- Chairman and Organizer, 2nd UNM Resilience Colloquium: “Urban Resilience: Challenges and Research Needs,” Albuquerque, New Mexico, USA, August 2017
- Co-organizer and Co-lead (with Usama Kandil), two-day workshop on “Polymer Nanocomposite for Sustainable Development in Egypt,” Cairo, Egypt, December 2016
- Organizer, two special sessions on “Nanotechnology for Improved Concrete Performance,” ACI Concrete Convention and Exposition, Philadelphia, Pennsylvania, USA, October 2016
- Organizer, 1st UNM Resilience Colloquium, Albuquerque, New Mexico, USA, May 2016
- Organizer, two special sessions on “Advances in the Use of Polymers in Concrete,” ACI Concrete Convention and Exposition, Milwaukee, Wisconsin, USA, April 2016
- Organizer, one-day NSF-funded workshop, “Toward Resilient and Sustainable Infrastructure Development at the new Suez Canal region in Egypt,” in collaboration with Suez Canal University, Cairo, Egypt, December 2015
- Organizer, two special sessions on “Field Applications of Structural Health Monitoring,” 1st Middle East Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures (SMAR 2011), Dubai, United Arab Emirates, February 2011
- Organizer (with K. Sobolev, University of Wisconsin-Milwaukee), two special sessions on “Nanotechnology for Concrete,” American Concrete Institute Fall 2009 Convention, New Orleans, Louisiana, USA, November 2009
- Organizer, two special sessions on “Structural Health Monitoring (SHM),” IEEE Conference on Systems of Systems, Big Island, Hawaii, October 2005
- Co-organizer, ASEE Gulf-Southwest Annual Conference, Albuquerque, New Mexico, USA, 2008
- Convener and Main Organizer: International Conference on Performance of Construction Materials in the New Millennium (ICPCM), Cairo, Egypt, February 2003s

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## UNIVERSITY OF NEW MEXICO LEADERSHIP AND SERVICE

### Leadership Achievements as Department Chair (2014–present)

- 2021, led successful fund raising of \$500k for renovation of CCEE computer lab. New computer lab with 56 student capacity and state-of-the-art classroom capabilities for teaching CAD and advanced CE classes to open for students in August 2021.
- 2020, established two new future endowed chairs in CCEE including \$1.0M for Water and Environment and \$0.5M for residential construction.
- 2020, Selected by UNM Provost as representative of School of Engineering to join UNM Administration Team for Collective Bargaining Agreement Negotiation, 2019-2020.
- 2020, Led CCEE Construction Manage Program to successful three-year ABET accreditation (to Fall 2023).
- Led UNM Civil Engineering to improved ranking of 76, *U.S. News & World Report*, 2018 (Department ranked 99 in 2014).
- Selected by provost for “Redesigning the University” initiative leadership team, 2018.
- Re-instantiated Stamm Professorship in Design-Build; endowed \$600,000 in cooperation with UNM School of Architecture and Planning, 2017-2018.
- Re-instantiated Lemon Fellowship in Design-Build; endowed \$300,000 in Construction Engineering, 2017-2018.
- Acquired \$3 million Dana C. Wood Endowment for School of Engineering, including \$1.5 million for improving Civil Engineering facilities and establishing Dana C. Wood Chair for Advanced Construction Materials and Technologies, 2017.
- Launched “12 in 12” initiative, targeting the raise of \$12 million over 12 years to place UNM Civil Engineering in the top 50 civil engineering programs nationwide, 2017.
- Led successful nine-year academic program review for UNM Civil Engineering, 2018.
- Led department to successful name change: “Department of Civil, Environmental and Construction Engineering.” Implemented Fall 2018.
- Led department to successful six-year ABET accreditation (September 2016 to Fall 2023). Department received strong accolades from visiting ABET accreditors.
- Led department to successful six-year ACCE accreditation (September 2014 to Fall 2020). Department received strong accolades from visiting ACCE accreditors.
- Implemented largest scholarship program in UNM Civil Engineering history, awarding \$150,000 annually, 2014-present.
- Continually improved research productivity for UNM Civil Engineering, as represented by research expenditures, from \$3.2 million in fiscal year 2014, to \$5.2M (FY 2015), \$5.8M (FY 2016), \$5.6M (FY 2017), \$6.0M (FY2018), \$6.5M (2019).
- Established first graduate student travel grants at UNM Civil Engineering, for travel and presentations at national and international conferences, 2014-present.
- Founded and direct UNM Resilience Institute, a UNM School of Engineering Research Center with 30 faculty members from Civil Engineering, Electrical and Computer Engineering, Computer Science, the UNM Health Sciences Center, Geography and Environmental Studies, the School of Law, the School of Architecture and Planning, and Anderson School of Management.

- Launched and co-led department faculty’s largest participation in University Transportation Center competition, resulting in the department being a key participant in Regional UTC 2017–2022.
- Led Civil Engineering strategic planning in 2015 and implemented new plan in 2016.
- Hired three new Civil Engineering faculty members, achieving the highest number of faculty in department history (22, up from 20).
- Launched 2016 school outreach campaign for UNM Civil Engineering: “Be a Lobo Builder — Innovate.”
- Reformed (2015) and expanded (2017) Civil Engineering Advisory Board.
- Established formal mentoring program for Civil Engineering junior faculty starting 2014.
- Reestablished biannual faculty teaching peer-review process in Civil Engineering.
- Launched first permanent annual UNM Civil Engineering Study Abroad program in Germany and the Netherlands, 2015-present.
- Oversaw tenure and/or promotion of seven department faculty members.
- Launched Master of Engineering–MBA program.
- Launched first online graduate program at UNM School of Engineering — Master of Construction Management, Fall 2015. Enrollment from 2 in 2015 to 17 in 2021.
- Chair for search committee for Electrical and Computer Engineering chair, Fall 2015.
- Represented School of Engineering at UNM Budget Compaction Panel, Summer 2015.

#### **Leadership Achievements as Director of Graduate Programs (2010–2012)**

- Launched Master of Engineering (MENG) degree.
- Raised GPA and GRE requirements for admission to Ph.D. program.

#### **Other Service to University of New Mexico**

- Member, UNM Administration Negotiation Team with Faculty Union, 2019-2021
- Member, UNM Academic Program Review Oversight Committee, 2018
- Member, UNM Provost Advisory Committee on Redesigning the University, 2018
- Chair, Electrical and Computer Engineering Chairman Search Committee, 2015–2016.
- Member, UNM President’s Committee on Tuition Sharing, Summer 2015
- Member, UNM Provost Advisory Committee on Tenure and Promotion, 2014–present
- Member, Research Policy Committee, UNM Senates, 2013–2014
- Member, Faculty Advisory Committee to School of Engineering Dean, 2013
- Member, Advisory Committee to VRP on Strategic Partnership with DTRA, 2010–2016
- Member, Advisory Committee to Vice President for Research on AFRL, 2010–2015
- Member, UNM Limited Competition Review Committee, 2010–2012
- Director of Graduate Program, Department of Civil Engineering, 2010–2012
- Member, School of Engineering Dean Search Committee, 2010–2011
- UNM Faculty Senator (Member of Faculty Senate), 2008–2010
- Member, Department of Civil Engineering Graduate Committee, 2005–2010
- Member, UNM VP Task Force for Proposal Development Software, Summer 2008
- Member, Department of Civil Engineering Equipment Committee, 2007–2008
- Member, School of Engineering Search Committee for CE Chairman, 2004–2005

## NONACADEMIC EMPLOYMENT

### Professional Registration

Professional Engineer (PE/Structural), New Mexico, USA, License # 25641 (active)  
Professional Engineer (PE/Structural), Arizona, USA, License # 71017 (active)  
Professional Engineer (PE/Structural), Texas, USA, License # 138023 (active)  
Professional Engineer (PE/Structural), New Jersey, USA, License # GE56316 (active)  
Professional Engineer (PEng), Alberta, Canada, License # M68041 (active)

### Structural Consultant – Calgary, Alberta, Canada

2009–present                      President, AIMT Engineering Service Inc., Albuquerque, NM, USA  
2000–2003                         Structural Engineer, Stantec Consulting Ltd.  
1999–2000                         Structural Engineer, Campbell Woodall & Associates

### Expert Witness

2017–present                      Expert witness in litigation cases (U.S., Europe, Australia)

### Consulting Services

Has worked as an international engineering consultant on numerous civil engineering projects worldwide, in countries including the United States, Australia, Canada, South Korea, Spain, Switzerland, United Arab Emirates, Kuwait, Saudi Arabia and Egypt.

### Consultant for the following companies

- Altran, Spain
- British Petroleum, TX, USA
- BGES, Calgary, Canada
- Chevron, TX, USA
- CSA Engineering, NM, USA
- Curtis Barrier International, Australia
- Graham Construction, Canada
- GS Engineering & Construct Corporation, South Korea
- ISL Engineering & Land Services, Edmonton, Canada
- KCPC, Kuwait
- Korean Railroad Research Institute, South Korea
- Saudi Aramco, Saudi Arabia
- Saudi Electrical Company, Saudi Arabia
- Sewer Shields Composites, AZ, USA
- Sogreah, Dubai, United Arab Emirates
- Stantec, Calgary, Canada
- Stutzki Engineering, WI, USA
- Structural Technologies, MA, USA
- Total SE, France
- Transpo Industries, NY, USA
- Zoltek, TX, USA



### **Example Consulting Projects**

- Structural design of building rehabilitation, 130 Madison Street, New York City, NY, USA.
- Structural design of Goat Hill Hydro Reservoir, Curtis Barrier International, Australia.
- Structural Design Review of US Navy Lodge, with Altran, Rota, Spain.
- Structural repair of Brooks Aqueduct for Heritage Canada, ISL Engineering, Canada.
- Structural design review, Enabling Earthwork, Petrofac – Upper Zakum 750 North Island Seawater Intake Structure, with Sogreah, Abu Dhabi, UAE.
- Structural design of FRP strengthening of 53th Av. bridge over Whitemud Drive, Edmonton, Alberta, Canada. with ISL Engineering, Edmonton, Canada.
- Structural design check of glass façade and roof repair for Zuhair Fayez Partnership building, work with KFUPM and Stutzki Engineering, Jeddah, Saudi Arabia.
- Structural and construction design, Saint Patrick’s pedestrian bridge, Calgary, Canada, with ISL Engineering and Graham Construction, Calgary, Canada.
- Repair and strengthening of 60th Street–Gaetz Interchange, reinforced concrete bridge girders using CFRP, with ISL Engineering, Red Deer, Canada.
- Structural health monitoring of reinforced concrete bridge on Interstate I-40, Tucumcari, with New Mexico Department of Transportation, NM, USA.
- Structural design of composite strengthening of reinforced concrete bridge on Interstate I-40, Tucumcari, with New Mexico Department of Transportation, NM, USA.
- Structural strengthening of Calgary Saddledome using CFRP materials. with SPECO Engineering and Stantec Consulting Ltd, Calgary, Canada.

### **PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS**

#### **American Concrete Institute**

- 2017–present Fellow
- 2020–present Member, Paper Award Committee (PAC)
- 2019–present Member, Committee 461, 3D-Printed Concrete
- 2015–present Chair, Committee 548 (Polymers & Adhesives in Concrete)
- 2015–present Secretary, Committee 241 (Nanotechnology of Concrete)
- 2009–present Member, Committee 435 (Deflection)
- 2009–2014 Secretary, Committee 548 (Polymers & Adhesives in Concrete)
- 2001–2008 Chairman, Task Force on Polymer Modified Concrete

#### **American Society of Civil Engineers**

- 2020–present Fellow
- 2019–present Member, Executive Committee, Infrastructure Resilience Division (IRD)
- 2018–present Co-Chair, ASCE Emerging Technologies Committee, IRD
- 2016–present Associate Editor, ASCE Journal of Materials in Civil Engineering

#### **Transportation Research Board**

- 2017–present Standing Committee on Polymer Concretes, Adhesives, and Sealers (AHD40)

#### **Association for Building Materials and Structures (RILEM, France)**

- 2004–present Associate Member