



Mohamed Emara

Curriculum Vitae

Extensive summary

With 16 years of experience in Civil/Structural Engineering, I have expertise in teaching, research, and design. My skills include the analysis and design of reinforced concrete structures, bridges, and composite structures, as well as the use of Fiber Reinforced Polymers (FRPs) for strengthening and retrofitting. I have hands-on experience with laboratory tests, construction supervision, scientific research, and scientific writing, resulting in several publications in esteemed journals. Proficient in software such as Abaqus, Autodesk Robot Structural Analysis, Autocad, Sap, Etabs, CSI, Safe, and Matlab, I am well-equipped to handle complex engineering tasks..

Education

- 2018 **PhD. in Technology (Civil Engineering)**, *University of Girona, Spain.*
Cum Laude
- 2011 **MSc. in Structural Engineering**, *Faculty of Engineering, Zagazig University, Egypt.*
- 2006 **BSc. in Civil Engineering**, *Faculty of Engineering, Zagazig University, Egypt.*
Very Good with Honour

Experience

- 2023–Present **Associate professor**, ZAGAZIG UNIVERSITY, Egypt
- 2023–Present **Structural Design Section Head**, BUREAU ÉGYPTIEN DE CONSEILS TECHNIQUES (BECT), Egypt
- 2024–Present **Head of the Civil Engineering Department**, DELTA HIGHER INSTITUTE OF ENGINEERING AND TECHNOLOGY, Egypt
- 2018–2023 **Assistant professor**, ZAGAZIG UNIVERSITY, Egypt
- 2014–2018 **Marie Curie Early Stage Researcher at Analysis and Advanced Materials for Structural Design (AMADE) research group.**, UNIVERSITY OF GIRONA, Spain
- 2006–2014 **Researcher/Assistant lecturer**, FACULTY OF ENGINEERING, ZAGAZIG UNIVERSITY, Egypt
- 2007–2014 **Civil/Structural Engineer**, BUREAU ÉGYPTIEN DE CONSEILS TECHNIQUES, Egypt Designer

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and Structural engineer.

2006–2007 **Civil/Structural Engineer**, BEHAIRY CONSULTING ENGINEERING (BCE), Egypt Designer and Structural engineer.

Awards

- Marie Curie Initial Training Network endure PhD Scholarship in 2014.
- FRP Lab Award during the laboratory competition at EMPA, Dübendorf, Switzerland in 2015.
- Zagazig University award for International Scientific Publication in 2019, 2020, 2021, 2022 and 2023.
- Best Paper Award in the 9th International Conference of Civil, Structural and Transportation Engineering (ICCSTE 2024).

Languages

Arabic
English
Spanish

Skills

- Communication Skills.
- Organizational/managerial skills.
- Teaching skills.
- Research skills.
- Intercultural skills.
- Computer skills

Memberships

- Australian Association for Steel-Concrete Composite Structures
- Fib TG5.1.
- COST TU1207.
- Member of the Engineers Syndicate, Egypt.
- Member of the Buildings Evaluation Committee, Ministry of Higher Education, Egypt.
- Concrete Structures Design Consultant, Engineers Syndicate, Egypt.
- Member of the Quality Assurance Unit, Faculty of Engineering, Zagazig University, Zagazig, Sharkia, Egypt.
- Member of the Scientific Link, Faculty of Engineering, Zagazig University, Zagazig, Sharkia, Egypt.

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Professional Service

- Acted as a reviewer for prestigious scientific journals including:
Construction and Building Materials, Journal of Building Engineering, Engineering Structures, Structures, Composite Structures, Archives of Civil and Mechanical Engineering, Composites Part B, Archives of Civil and Mechanical Engineering, Advances in Mechanical Engineering, Computers and Concrete, Concrete Structures and Materials, Frattura ed Integrità Strutturale, Frontiers of Structural and Civil Engineering, Scientific Reports, SN Applied Sciences, Applied Science, Fires, Sustainability, Materials, fire, Infrastructures, Structural Engineering and Mechanics
- Concrete Structures Design Consultant:
providing expert guidance and solutions for a wide range of construction projects. My primary focus is on ensuring the structural integrity, safety, and durability of concrete structures. I excel in analyzing design requirements, conducting structural assessments, and developing innovative design strategies tailored to meet project specifications. Well-versed in industry codes and standards. Collaborative and dedicated to delivering high-quality, cost-effective, and sustainable solutions.

Training courses attended

- The educational session for the members of the scientific missions; Stress Management, Self Branding, Presentation Skills, Communication Skills, Economical Challenges, and National Security (National Training Academy –NAT, Egypt)
- Strategic planning for colleges and institutes of higher education (National Authority for Quality Assurance and Accreditation in Education –NAQAAE, Egypt)
- Self-evaluation for high education faculties and institutes (National Authority for Quality Assurance and Accreditation in Education –NAQAAE, Egypt)
- Scientific reference management systems (Zagazig University, Egypt)
- Organizing scientific conferences (Zagazig University, Egypt)
- Preparation of the university lecturer (Zagazig University, Egypt)
- Crisis and disaster management (Zagazig University, Egypt)
- Examination systems and student assessment (Zagazig University, Egypt)
- Communication skills in different education (Zagazig University, Egypt)
- Using technology in teaching (Zagazig University, Egypt)
- Scientific writing and reference management by Endnote (Zagazig University, Egypt)
- Reinforcing and strengthening of structures with FRP reinforcement (Ghent University, Belgium)
- Communication skills (University of Girona, Spain)
- Scientific writing (University of Girona, Spain)

Publications

- Badawi, M., Bahrami, A., Ghalla, M., **Emara, M.**, Mlybari, E. A., and Elsamak, G., "*Flexural Strengthening of Reinforced Concrete Cantilever Beams having Insufficient Splice Length*", Results in Engineering, vol. 24 (2024), pp. 102869, <https://doi.org/10.1016/j.rineng.2024.102869>.
- **Emara, M.**, Elsamak, G., Ghalla, M., Hu, J. W., Badawi, M., and Salama, M. I., "*Shear improvement of defected RC beams with sustainable aluminum boxes incorporating high performance concretes*", Case Studies in Construction Materials, vol. 21 (2024), pp. e03500,

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<https://doi.org/10.1016/j.cscm.2024.e03500>.

- Nawar, M. T., Selim, M., Zaghlal, M., El-Zohairy, A., and **Emara, M.**, "*erformance of GFRP-Confined Rubberized Engineered Cementitious Composite Columns*", *Journal of Composites Science*, vol. 8(8) (2024), pp. 330, <https://doi.org/10.3390/jcs8080330>.
- El-ghareeb, J. E., Abd-EL-Mottaleb, H. E., Elshamy, E. A., and **Emara, M.**, "*Seismically resistant progressive collapse behavior of infilled frame structures under seismic loads and column loss: A numerical investigation*", *Structures*, vol. 66 (2024), pp. 106913, <https://doi.org/10.1016/j.istruc.2024.106913>.
- **Emara, M.**, Ghalla, M., Hu, J.W., Badawi, M., Mlybari, E.A. and Ahmed, S.O., "*Enhancement of cantilevered RC beams exhibiting inadequate lap spliced reinforcement using sustainable reinforced ECC layers*", *Construction and Building Materials*, vol. 428 (2024), pp. 136272, <https://doi.org/10.1016/j.conbuildmat.2024.136272>.
- Hamoda, A., **Emara, M.**, Aref, A.A., and Sennah, K., "*Influence of shear strengthening of reinforced normal concrete beams incorporating sustainable materials*", *Structural Concrete*, (2024), pp. 1-18, <https://doi.org/10.1002/suco.202300556>.
- Ghazy, A.H., **Emara, M.**, Adbellah, A.M., and Attia, M.I.E., "*Self-healing concrete techniques and performance: A review*", *Research on Engineering Structures and Materials*, vol. 10(1) (2024), pp. 363–387, <http://dx.doi.org/10.17515/resm2023.51ma0615rv>.
- Selim, M., Kamel, M.E., Elshamy, E., and **Emara, M.**, "*Effect of pre-tensioning force on behavior of Buckling Restrained Brace (BRB) supported by double pre-tensioning system*", *Frattura ed Integrità Strutturale*, vol. 18(67) (2024), pp. 205-2016, <https://doi.org/10.3221/IGF-ESIS.67.15>.
- Ahmed, M., Shahin, R., Yehia, S., **Emara, M.**, Patel, V., and Liang, Q., "*Nonlinear analysis of square steel-reinforced concrete-filled steel tubular short columns considering local buckling*", *Structural Concrete*, vol. 25(1) (2024), pp. 69-84, <https://doi.org/10.1002/suco.202300402>.
- Ahmed, M., Yehia, S., Shahin, R., **Emara, M.**, Patel, V., and Liang, Q., "*Numerical analysis of circular steel-reinforced concrete-filled steel tubular stub columns*", *Magazine of Concrete Research*, vol. 76(6) (2024), pp. 303-318, <https://doi.org/10.1680/jmacr.23.00153>.
- **Emara, M.**, Salem, M.A., Mohamed, H.A., Shehab, H.A. and El-Zohairy, A., "*Shear Strengthening of Reinforced Concrete Beams Using Engineered Cementitious Composites and Carbon Fiber-Reinforced Polymer Sheets*", *Fibers*, vol. 11(11) (2024), pp. 98, <https://doi.org/10.3390/fib11110098>.
- **Emara, M.**, Hamoda, A., and Hu, J. W., "*Numerical assessment of rectangular one- and two-way RC slabs strengthened with CFRP under impact loads*", *Computers and Concrete*, vol. 31(3) (March 2023), pp. 173-184, <https://doi.org/10.12989/cac.2023.31.3.173>.
- **Emara, M.**, Ahmed, M., Neaz Sheikh, M., Patel, V., Liang, Q., and Hadi, M., "*Finite element modeling of square high-strength concrete short columns longitudinally reinforced with steel equal-angles under axial loading*", *Structures*, vol. 50 (April 2023), pp. 1653-1669, <https://doi.org/10.1016/j.istruc.2023.02.126>.
- Ahmed, S., Mohamed., E.Y., Mohamed, H.A., and **Emara, M.**, "*Experimental and numerical investigation of flexural behavior of RC beams retrofitted with reinforced UHPFRC layer in tension surface*", *Structures*, vol. 49 (March 2023), pp. 106-123, <https://doi.org/10.1016/j.istruc.2023.01.113>.
- **Emara, M.**, El-Zohairy, A., Fekry, M., and Husain, M., "*Effect of Using ECC Layer on the Flexural Performance of RC Beams Previously Strengthened with EB CFRP Laminates*", *Sustainability*, vol. 14 (2022), pp. 16990, <https://doi.org/10.3390/su142416990>.
- Selim, M., Ibrahim, Y.E., and **Emara, M.**, "*Seismic retrofitting of a deteriorated RC building*", *Case*

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Studies in Construction Materials, vol. 18 (July 2023), pp. 01758, <https://doi.org/10.1016/j.cscm.2022.e01758>.

- Hamoda, A., **Emara, M.**, Abdelazeem, F., and Ahmed, M., "*Experimental and numerical analysis of RC beams strengthened with ECC and stainless steel strips*", Magazine of Concrete Research, vol. 75(5) (2023), pp. 251-270, <https://doi.org/10.1680/jmacr.22.00127>.
- Hamoda, A., Elsamak, G., **Emara, M.**, Ahmed, M., and Liang, Q., "*Experimental and numerical studies of reinforced concrete beam-to-steel column composite joints subjected to torsional moment*", Engineering Structures, vol. 275 Part A (2023), pp. 115219, <https://doi.org/10.1016/j.engstruct.2022.115219>.
- **Emara, M.**, Mohamed, H. A., Rizk, Mostafa S., and Zaghlal, M., "*Enhancement of circular RC columns using steel mesh as internal or external confinement under the influence of axial compression loading*", Frattura ed Integrità Strutturale, vol. 58 (2021), pp. 86-104, <https://doi.org/10.3221/IGF-ESIS.58.08>.
- Alharthi, Y. M., **Emara, M.**, Elamary, A. S., and Sharaky, I. A., "*Flexural response and load capacity of reinforced concrete beams strengthened with reinforced mortar layer*", Engineering Structures, vol. 245 (2021), pp. 112884, <https://doi.org/10.1016/j.engstruct.2021.112884>.
- **Emara, M.**, Elkomy, N., and Hassan, H., "*Numerical Assessment of Reinforced Concrete Beams Strengthened with CFRP Sheets under Impact Loading*", Frattura ed Integrità Strutturale, vol. 15(58) (2021), pp. 48-64, <https://doi.org/10.1016/j.istruc.2021.01.061>.
- **Emara, M.**, Mohamed, H. A., Rizk, Mostafa S., and Hu, Jong Wan, "*Behavior of ECC Columns Confined Using Steel Wire Mesh under Axial loading*", Journal of Building Engineering, vol. 43 (2021), pp. 102809, <https://doi.org/10.1016/j.jobbe.2021.102809>.
- Sharaky, I. A., Ghoneim, Sherif S.M., Abdel Aziz, Baligh H., and **Emara, M.**, "*Experimental and theoretical study on the compressive strength of the high strength concrete incorporating steel fiber and metakaolin*", Structures, vol. 31 (2021), pp. 57-67, <https://doi.org/10.1016/j.istruc.2021.01.061>.
- Hamoda, A., Abdelazeem, F., and **Emara, M.**, "*Concentric compressive behavior of hybrid concrete-Stainless Steel Double-Skin Tubular Columns incorporating High Performance Concretes*" Thin-Walled Structures, vol. 16 (2020), 107297, <https://doi.org/10.1016/j.tws.2020.107297>.
- Sharaky, I. A., Mohamed, H. A., Torres, L., and **Emara, M.**, "*Flexural Behavior of Rubberized Concrete Beams Strengthened in Shear Using Welded Wire Mesh*", Composite Structures, vol. 247 (2020), 112485.
- **Emara, M.** and Hamoda, A., "*Numerical Modeling of Time-Displacement Response of RC Slab Subjected to Impact Loading*", IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE), vol. 16, No. 5 (2019), pp. 11-20, <https://doi.org/10.9790/1684-1605031120>.
- Hamoda, A., **Emara, M.**, Mansour, W., "*Behavior of steel I-beam embedded in normal and steel fiber reinforced concrete incorporating demountable bolted connectors*", Composites Part B: Engineering, vol. 174 (2019), pp. 106996, <https://doi.org/10.1016/j.compositesb.2019.106996>.
- **Emara, M.**, Torres, L., Baena, M., Barris, C., and Moawad, M., "*Effect of sustained loading and environmental conditions on the creep behavior of an epoxy adhesive for concrete structures strengthened with CFRP laminates*", Composites Part B: Engineering, vol. 129C (2017), pp. 88-96, <https://doi.org/10.1016/j.compositesb.2017.07.026>.
- **Emara, M.**, Torres, L., Baena, M., Barris, C., and Cahis, X., "*Bond response of NSM CFRP*

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strips in concrete under sustained loading and different temperature and humidity conditions", Composite Structures, vol. 192C (2018), pp. 1-7, <https://doi.org/10.1016/j.compstruct.2018.02.048>.

- **Emara, M.**, Barris, C., Baena, M., Torres, L., and Barros, J., "*Bond behavior of NSM CFRP laminates in concrete under sustained loading*", Construction and Building Materials, vol. 177 (2018), pp. 237-246, <https://doi.org/10.1016/j.conbuildmat.2018.05.050>.
- **Emara, M.**, Baena, M., Torres, L., Barris, C., Moawad, M., and Perera, R., "*Effect of Sustained Load and Environmental Conditions on the Bond between NSM FRP Strips and Concrete*", in the 8th International Conference on Advanced Composites in Construction (ACIC). 5-7 September, 2017, Sheffield, UK.
- Moawad, M., Torres, L., Barris, C., Baena, M., **Emara, M.**, and Perrera, R., "*Sustained Loading Effects on NSM Strengthened RC Beams With Different CFRP Ratios*", in the 8th International Conference on Advanced Composites in Construction (ACIC). 5-7 September, 2017, Sheffield, UK.
- **Emara, M.**, Baena, M., Barris, C., Torres, L., and Moawad, M., 2017. "*Time-dependent bond behavior between NSM CFRP strips and concrete*", in the Fourth Conference on Smart Monitoring. Assessment and Rehabilitation of Civil Structures (SMAR). 13-15 September, 2017, Zürich, Switzerland.
- **Emara, M.**, Barris, C., Baena, M., Moawad, M., Torres, L., and Perrera, R., "*Residual capacity of concrete strengthened with NSM CFRP strips subjected to sustained loading*", in the 20th International Conference on Composite Structures (ICCS-20), 4-7 September 2017, Paris, France.
- **Emara, M.**, Torres, L., Baena, M., Barris, C., Moawad, M., and Sevillano, E., "*Creep of an epoxy adhesive for Near Surface Mounted Fiber Reinforced Polymers strengthening of Reinforced Concrete beams under different environmental conditions*", in the 7th International Conference on Structures (ACHE), A Coruña, Spain, 20-22 June 2017.
- Moawad, M., Torres, L., Barris, C., Baena, M., **Emara, M.**, and Perrera, R., "*Time-dependent deformations of NSM CFRP strengthened RC beams*", in the 7th International Conference on Structures (ACHE), A Coruña, Spain, 20-22 June 2017.
- **Emara, M.**, Torres, L., Barris, C., Baena, M. and Moawad, M., "*Bond Behavior of NSM FRP strips in Concrete under Sustained Loading*", in the 19th International Conference on Composite Structures (ICCS19), 5-9 September 2016 in Porto, Portugal.
- Moawad, M., Torres, L., Barris, C., Baena, M., and **Emara, M.**, "*Flexural behaviour of NSM FRP strengthened RC beams under sustained loading* ", in the 19th International Conference on Composite Structures (ICCS19), 5-9 September 2016 in Porto, Portugal.
- Hamdy A. Shehab, Mohamed A. Almetwally , Salah Abd El-maged and **Mohamed R. Emara**, "*Effect of Cement Alternative on the Mechanical Properties of Self Compacting Concrete Using Variable Aggregate Types*", The Egyptian Int. Journal of Eng. Sciences and Technology, Faculty of Engineering, Zagazig University, September. 2011.

Presentations, posters and competitions

- Participation in the poster competition celebrated in the 3rd endure official meeting in Kaiserslautern, Germany, during 22-24 October 2014. Title and authors: "*Bond between NSM FRP and Concrete*", M. Emara, L. Torres and C. Barris.
- A presentation during 4th endure official meeting in Ghent, Belgium, 26 January 2015. Title and authors: "*Bond between NSM FRP and Concrete*", M. Emara and L. Torres.
- A presentation during the research group AMADE special meeting with visiting students from U.

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Lyon 1 (France), Vilnius Gediminas Technical University (Lithuania), Chulalongkorn University in Bangkok (Thailand), Girona, Spain, 18 February 2015. Title and authors: *"A study of the bond and flexural behaviour of reinforced concrete elements strengthened with near surface mounted (NSM) FRP reinforcement"*, M. Emara and L. Torres.

- A presentation during the research group AMADE weekly meeting, Girona, Spain, 26 February 2015. Title and authors: *"Bond behaviour of reinforced concrete elements strengthened with near surface mounted (NSM) FRP reinforcement"*, M. Emara and L. Torres.
- A presentation during 5th endure official meeting in Dübendorf, Switzerland, 30 June 2015. Title and authors: *"Bond Behaviour of NSM FRP"*, M. Emara and L. Torres.
- Participation in the poster competition celebrated in the 5th endure official meeting in Dübendorf, Switzerland, during 29-03 July 2015. Title and authors: *"Bond between NSM FRP and Concrete"*, M. Emara, L. Torres, C. Barris.
- FRP Lab Award for best predictions/report during the laboratory competition, EMPA, Dübendorf, Switzerland, 2 July 2015.
- A presentation during the research group AMADE weekly meeting, Girona, Spain, 19 May 2016. Title and authors: *"Bond behaviour between Near Surface Mounted (NSM) FRP and concrete under sustained load"*, M. Emara and L. Torres.
- A presentation during endure official meeting in Padova, Italy, 11 July 2016. Title and authors: *"Bond Behaviour of NSM FRP and Concrete under Sustained Load"*, M. Emara and L. Torres.
- A presentation during COST TU1207 meeting in Budapest, Hungary, 03-05 April, 2017. Title and authors: *"Effect of Sustained Load on the Residual Capacity of Concrete Strengthened with NSM CFRP Strips"*, M. Emara, C. Barris, M. Baena, M. Moawad and L. Torres.

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