TEXAS STATE VITA

Note: Updates 2026 in blue font

I. Academic/Professional Background

A. Name: Carlos Moro Title: Assistant Professor

B. Educational Background

Degree	Year	University	Major	Thesis/Dissertation
Ph.D.	2021	Purdue University	Civil Engineering	Influence of nano-TiO_2 addition on the environmental performance of cementitious composites: A holistic approach
M.S.	2017	University of A Coruña (Spain)	Civil Engineering	Construction project of an indoor athletics track in A Coruña
B.S.	2015	University of A Coruña (Spain)	Civil Engineering	

C. University Experience

Position	University	Dates
Assistant Professor	Texas State University	01/16/2022 - Present
Teaching Assistant	Purdue University	01/07/2020 – 12/24/2021
Research Assistant	Purdue University	08/18/2018 – 01/07/2020

D. Relevant Professional Experience

Position	Entity	Dates
Research Assistant	Purdue University	08/18/2018 – 12/24/2021
Civil Engineer	K2 Ingenieria (Spanish civil engineering consultant)	05/18/2017 – 07/31/2018

E. Other Professional Credentials (licensure, certification, etc.):
None

II. TEACHING

A. Teaching Honors and Awards:

Title		Description	University	Date
Lyles Assistantship	Teaching	Offered to experienced TAs in Civil Engineering to assist a professor instruct and coordinate others TAs	Purdue University	Fall 2021

Estus H. And Vashti L. Magoon Award for Excellence in Teaching	Recognizes outstanding teaching assistants and instructors	Purdue University	Spring 2021
Lyles TA Fellowship	Recognizes outstanding graduate students with a promising future in academia.	Purdue University	Spring 2021

B. Courses Taught:

Texas State University:

- MSEC 7395J: Advanced Concrete Materials and Durability (SP 25, SU 26)
- CIM 3330: Concrete Construction Methods (SP 24)
- CIM 3340: Understanding the Concrete Construction System (FA 23)
- CIM 3420: Fundamentals of Concrete: Properties and Testing (SP 22-26, FA 24-26)
- CIM 4350: Advanced Concrete Technology (FA 24-26, SP 25-26)
- TECH 2351: Statics and Strength of Materials (FA 22-23, SP 26)

Teaching Evaluations (5.0 Scale)

Course	Semester	Students	Learning	Enthusiasm	Organization	Ind. Rapport
CIM 3330	SP 24	23	4.51	4.36	4.25	4.76
CIM 3340	FA 23	5	4.15	4.50	4.45	4.80
CIM 3420	SP 26	34	4.29	4.23	4.21	4.38
	FA 25	39	4.57	4.41	4.36	4.53
	SP 25	19	4.31	4.29	4.18	4.53
	FA 24	42	4.33	4.19	4.07	4.57
	SP 24	25	4.33	4.12	4.13	4.48
	SP 23	9	4.64	4.43	4.68	4.81
	SP 22	7	4.88	4.63	4.38	4.58
CIM 4350	SP 26	19	4.53	4.62	4.60	4.67
	FA 25	22	4.43	4.64	4.44	4.58
	SP 25	10	4.92	4.70	4.75	4.87
	FA 24	12	4.50	4.79	4.73	4.89
TECH 2351	SP 26	7	4.25	4.80	4.70	4.65
	FA 23	32	4.11	4.18	4.01	4.38
	FA 22	36	4.14	4.12	4.11	4.53

Purdue University:

- CE 335: Civil Engineering Materials (Fall 2020 / Spring 2021 / Fall 2021)
- CE 299: Thermal and Energy Science for Civil Engineers (Spring 2020)

C. Directed Student Learning (i.e., theses, dissertations, exit committees, etc.):

Post-Graduate Students (Advisor):

Date	Name/Degree	Title
Summer 2025 - Present	Muhammad Usama Salim	Helping with current projects

Graduate Students (Advisor):

Date	Name/Degree	Title
Spring 2026 – Present	Fatemeh Karimi / **Masters (Chair)**	TBD
Fall 2025 – Present	Kehinde Adewale / **PhD (Chair)**	CO_2 Curing of Metakaolin-Based Cementitious Systems: A Comprehensive Study
Spring 2025 – Present	Jacob Araguz / **Masters (Chair)**	Comparative Energy Analysis of Hempcrete in Residential Buildings in Austin, Texas and Seville, Spain
Fall 2023 - Summer 2026	Ghazal Gholami Hossein Abadi / **PhD (Chair)**	Developing a Performance Based Concrete Overlay Mix Design Using Rounded Aggregate
Fall 2023 - Summer 2025	Kehinde Adewale / **Masters (Chair)**	Enhancing Fire Resistance on Cement-Based Materials Through Nanoparticles and CO_2 Curing
Spring 2023 - Summer 2025	Muhammad Usama Salim / **PhD (Chair)**	Towards Greener Construction: Evaluating The Feasibility of GGBFS-Cenosphere Geopolymers for Sustainable Construction Materials
Spring 2024 – Spring 2025	Satyapriya Kambampati / **Masters (Chair)**	Refinement of Reinforced Concrete Box Culvert Installation Guidelines
Spring 2024 - Spring 2025	Travis Blake / **Masters (Co-Chair)**	Comparative Analysis of Embodied Carbon Emissions of Low Rise Buildings in Austin, Texas

Graduate Students (Committee Member):

Date	Name/Degree	Title
Fall 2024 - Present	Husam H. Elgaali, **PhD**	TBD (Purdue University)
Fall 2025 - Present	Prabeshika Khanal/ **Masters**	Performance Evaluation of Cement-Mortar with Biochar as Partial Replacement of Cement and Sand
Fall 2024 - Present	Debo Brata Paul Argha/ **PhD**	Advancing Performance-Based Design for Concrete Bridge Overlays: A Final-Scale Evaluation of Non-UHPC Mixtures
Fall 2025 - Present	Madhav Gautam/ **Masters**	TBD

Spring 2025 - Present	Saman Menbari/ **PhD**	Eco-Friendly Composite Sandwich Panels for Industrial Applications: A Data-Driven Study on Mechanical and Thermal Behavior
Fall 2024 - Present	Precious Aduwenye/ **PhD**	A Cost-Effective, Sustainable Ultra-High Performance Concrete Materials Using Recycled Steel Fiber (RSF)
Spring 2022 - Present	Ruben Villarreal / **PhD**	Mechanical and Durability Performance of Concrete Pavement made with Waste Garnet and Foundry Sand
Fall 2024 - Fall 2025	Picasso Kumar Debnath / **Masters**	Synergetic Utilization of Hemp Shives as an Internal curing (IC) Agent in Concrete
Fall 2022 - Fall 2025	Ayush Subedi / **PhD**	Understanding the Effects of Vibration on Space Based Construction Materials
Fall 2024 - Summer 2025	Anika Salsabiyl / **Masters**	Enhancing Urban Energy Sustainability through PCM-Integrated Concrete Infrastructure
Fall 2023 - Spring 2025	Asmita Mankar / **PhD**	Developing a Performance Based Concrete Overlay Mix Design Using Angular Aggregate
Fall 2022 – Fall 2024	Aamar Danish / **PhD**	Synthesis and Performance Evaluation of Reclaimed Fly Ash-Based Geopolymers
Fall 2021 – Spring 2024	Mohammed Tijani / **PhD**	Assessing Setting Time and Hydraulic Reactivity of Rapid Setting Hydraulic Cements (RSHCs)

Undergraduate Students:

Date	Name	Title
Spring 2026 – Present	Sapnil Basnet	AI in concrete
Fall 2025 – Present	Jacob Gordon	Help with current projects
Spring 2025 – Present	Jordi Chavez	Help with current projects
Spring 2025 – Fall 2025	Hayden Jeffus	Help with current projects
Fall 2024 – Fall 2025	Kendal Bruderer	Help with current projects
Fall 2022 – Fall 2025	Joe Grout	Use of CO_2 technologies in concrete
Fall 2023 – Spring 2024	Carter Killion	Help with current projects
Fall 2022 – Fall 2024	Baxter Gonzalez	Use of CO_2 technologies in concrete

D. Courses Prepared and Curriculum Development:

MSEC 7395J: Advanced Concrete Materials and Durability (new course)

- Created lectures
- Developed HW
- Included project during the course with presentations included
- Interaction with the students in-class (active learning activities)

CIM 4350: Advanced Concrete Materials (new course)

- Created lectures
- Developed lab sessions and HW
- Included projects during the course with presentations included

- Invited industry guest speakers
- Interaction with the students in-class (active learning activities)

CIM 3330: Concrete Construction Methods
- Added new homework and exam problems
- Included two presentations for the course's project
- Invited three industry guest speakers
- Interaction with the students in-class (active learning activities)
- Adapted examples to students' interests

CIM 3340: Understanding the Concrete Construction System
- Added new homework and exam problems
- Interaction with the students in-class (active learning activities)
- Adapted examples to students' interests

TECH 2351: Statics and Strength of Materials
- Included new homework and exam problems
- New extra assignments to increase the amount of practice examples
- Adapted examples to students' interests
- Development of new active learning techniques

CIM 3420: Fundamentals of Concrete: Properties and Testing
- Included extra lectures regarding new technology in the field
- Added extra assignments and practices about ACI Certification Field Testing I
- Interaction with the students in-class
- Modified homework and exam problems

CE 335: Civil Engineering Materials (Purdue University)
- Development of hybrid lab sessions
- Added new homework and exam problems
- Development of new active learning techniques

E. Teaching Grants and Contracts:
None

F. Other:
None
G. Teaching Professional Development Activities Attended:

Latinx Trailblazers in Engineering Fellowship (Fall 2021)
Program at Purdue Engineering is to prepare future trailblazing faculty in engineering with a focus on preparing outstanding scholars who are also committed to increasing the success of underrepresented communities.

III. SCHOLARLY/CREATIVE

A. Works in Print (including works accepted, forthcoming, in press):

1. Books:

a. Scholarly Monographs:
None

b. Textbooks:
None

c. Edited Books:
None

d. Chapters in Books:
None

e. Creative Books:
None

2. Articles:

a. Refereed Journal Articles: **(32 Published)**

With Texas State Affiliation:

*: Corresponding or primary author, G: Graduate student, U: Undergraduate student.

[32] Adewale, K.G, **Moro, C.*,** (2026), "Exploring CO_2 Mineralization for Enhanced Fire Resistance in Cement-Based Materials Containing Slag Cement and Fly Ash Cenosphere", *Construction and Building Materials*, 529, 146588. Link.

[31] Gholami Hossein Abadi, G.G, Okechi, I. K., Aguayo, F., Sai Nitesh, K. J. N., Mankar, A.G, Paul Argha, D. B. P.G, Chavez Rivera, J.U, Shi, X., Espinoza Chavez, W., Torres, A., **Moro, C.*,** (2026), "Reducing Carbon Footprint Through Binder Content Optimization in Durable Performance-Based Concrete Overlays", *Materials and Structures*, 59, 150, Link.

[30] Gholami Hossein Abadi, G.G, Adewale, K.G, Salim, M.U.G, **Moro, C.*,** (2026), "Enhancing Concrete Strength Prediction From Non-Destructive Testing Under Variable Curing Temperatures Using Artificial Neural Networks", *Infrastructures*, 11, 2, 46, Link.

[29] Lopez-Arias, M., **Moro, C.,** Velay-Lizancos, M.*, (2026), "CO_2 exposure age: a key factor to enhance cementitious composites' flexural strength through induced CO_2 mineralization treatment", *Materials and Structures*, 59, 146, Link.

[28] Salim, M. U.G, **Moro, C.***, (2025), "Promoting Circularity in Cenosphere Geopolymer Binders through Waste Spent Garnet", *Construction and Building Materials* , 495, 143716. Link.

[27] Salim, M.U.G, **Moro, C.***, (2025), "Microstructural Insights of Geopolymer Mortar Containing Cenosphere: Effects on Fresh Properties and Durability", *Materials and Structures*, 58, 101. Link.

[26] Espinoza, W.F.*, Moposita, R., Torres, A., **Moro, C.**, (2025), "Characterizing marble strength and elasticity: Insights from destructive and non-destructive techniques on El Laurel formation (Ecuador)", *Construction and Building Materials*, 468, 140340. Link.

[25] Salim, M.U.[G], Adewale, K.[G], Gholami Hossein Abadi, G.[G], **Moro, C.**[*], (2024), "Long-term performance evaluation of slag-cenosphere geopolymer mortar", *Construction and Building Materials*, 457, 139491. Link.

[24] Salim, M.U.[G], Danish, A.[G], Torres, A.S., **Moro, C.**[*], (2024), "Environmental Assessment of Cenosphere and GGBFS-Based Geopolymers: A Path to Greener Construction Material", *Environmental Impact Assessment Review*, 110, 107711, Link.

[23] Francioso, V.[*], Lemos Micolta, E. D., Elgaali, H. H., **Moro C.**, Rojas Manzano, M.A., Velay-Lizancos, M., (2024) "Valorization of Sugarcane Bagasse Ash as an Alternative SCM: Effect of Particle Size, Temperature-Crossover Effect Mitigation & Cost Analysis". *Sustainability*, 16, 21, 9370. Link.

[22] Adewale, K.[G], Salim, M.U.[G], Gholami Hossein Abadi, G.[G], **Moro, C.**[*], (2024), "Exploring Enhanced High-Temperature Resistance: Analyzing the Combined Impact of Fibers and Nanoparticles in Mortars", *Construction and Building Materials*, 435, 136886. Link.

[21] Salim, M.U.[G], **Moro, C.**[*], (2024), "Towards Sustainable Construction: Performance Evaluation of Slag-Cenosphere Geopolymers Under Different NaOH Concentrations", *Journal of Building Engineering*, 91, 109605. Link.

[20] Danish, A.[G*], Torres, A., **Moro, C.**, Salim, M.U.[G], (2024) "Hope or hype? Evaluating the environmental footprint of reclaimed fly ash in geopolymer production" *Resources, Conservation & Recycling*, 205, 107564. Link.

[19] Salim, M.U.[G], Mosaberpanah, M.A., Danish, A.[G], Ahmad, N., Khalid, R.A., **Moro C.**[*]**,** (2023) "Role of Bauxite Residue as a Binding Material and its Effect on Engineering Properties of Cementitious Composites: A Review". *Construction and Building Materials*, 409, 133844, Link.

[18] Batalha Vieira, L., Francioso V.[*], Bueno Mariani, B., **Moro C.,** Dantas Viana, J., Da Silva Paes Cardoso, L., Ribeiro Dias, C. M., and Velay-Lizancos M.[*] (2023), "Valorization of marble waste powder as a replacement of limestone in clinker production: Technical, environmental and economical evaluation". *Sustainability*, 15, 18, 13902, Link.

[17] Lopez-Arias, M., **Moro C.,** Francioso V., Elgaali, H. H. and Velay-Lizancos M.[*] (2023), "Effect of nanomodification of cement pastes on the CO_2 uptake rate". *Construction and Building Materials,* 404, 133165, Link.

[16] **Moro C.**[*] (2023), "Comparative Analysis of Multi-Criteria Decision Making and Life Cycle Assessment Methods for Sustainable Evaluation of Concrete Mixtures". *Sustainability*, 15, 17, 12746, Link.

[15] **Moro C.**[*]**,** Grout, J.[U] and Gonzalez, B.[U]. (2023), "Effect of Dual CO_2 Technologies on the Properties of Mortars with Slag Cement". *International Journal of Civil Engineering*., 21, 1897-1909. Link.

[14] **Moro C.**[*]**,** Francioso V., Lopez-Arias, M., and Velay-Lizancos M. (2023), "CO_2 Curing of Mortar with Natural and Recycled Concrete Aggregate: An Environmental and Economic Assessment". *Construction and Building Materials*, 399, 132587, Link.

[13] Villarreal, R., Torres, A. S.[*], Aguayo, F., & **Moro, C.** (2023), "An Alternative Test Method for Determining Hardened Air Void Parameters for Durable Concrete Pavement". *Journal of Civil Engineering and Construction*. 12, 1, 19-39, Link.

[12] Francioso V., Lopez-Arias, M., **Moro C.**, Jung, N. and Velay-Lizancos M.*. (2022), "Impact of curing temperature on the sustainability of sugarcane bagasse ash as a partial replacement of cement in mortars: an LCA". *Sustainability*, 15, 1, 142 Link.

[11] **Moro C.***, Francioso V., Lopez-Arias, M., and Velay-Lizancos M. (2022), "The impact of CO_2 uptake rate on the environmental performance of cementitious composites: A new dynamic Global Warming Potential analysis". *Journal of Cleaner Production*, 375, 134155, Link.

[10] Villarreal, R., Torres, A.*, Aguayo. F., **Moro C**. (2022), *"*Assessing the Degree of Polish on Hardened Concrete Air Void Parameters*"*. *Journal of Civil Engineering and Construction*, 11, 177-188, Link.

[9] **Moro C.**, Francioso V., Lopez-Arias, M., and Velay-Lizancos M.* (2022), *"*Modification of self-cleaning activity on cement pastes containing nano-TiO_2 due to CO_2 curing*"*. *Construction and Building Materials*, 330, 127185, Link.

With Purdue Affiliation:

[8] Francioso V., **Moro C**., and Velay-Lizancos M.* (2021), "Effect of recycled concrete aggregate (RCA) on mortar's thermal conductivity susceptibility to variations of moisture content and ambient temperature". *Journal of Building Engineering*, 43, 103208, Link.

[7] **Moro C.**, Francioso V., and Velay-Lizancos M.* (2021), "Impact of nano-TiO_2 addition on the reduction of net CO_2 emissions of cement pastes after CO_2 curing". *Cement and Concrete Composites*, 123, 104160, Link.

[6] **Moro C.**, Francioso V., and Velay-Lizancos M.* (2021), "Modification of CO_2 capture and pore structure of hardened cement paste made with nano-TiO_2 addition: influence of water-to-cement ratio and CO_2 exposure age". *Construction and Building Materials*, 275, 122131, Link.

[5] Francioso V., **Moro C.**, Castillo A., and Velay-Lizancos M.* (2021), "Effect of elevated temperature on flexural behavior and fibers-matrix bonding of recycled PP fiber-reinforced cementitious composite". *Construction and Building Materials*, 269, 121243, Link.

[4] **Moro C.**, El-Fil H., Francioso V., and Velay-Lizancos M.* (2021), "Influence of water-to-binder ratio on the optimum percentage of nano-TiO_2 addition in terms of compressive strength of mortars: A laboratory and virtual experimental study based on ANN model". *Construction and Building Materials*, 267, 120960, Link.

[3] **Moro C.**, Francioso V., Schrager M., and Velay-Lizancos M.* (2020), "TiO_2 nanoparticles influence on the environmental performance of natural and recycled mortars: A life cycle assessment". *Environmental Impact Assessment Review*, 84, 106430, Link.

[2] **Moro C.,** Francioso V., and Velay-Lizancos M.* (2020), "Nano-TiO_2 effects on high temperature resistance of recycled mortars". *Journal of Cleaner Production*, 263, 121581, Link.

[1] Francioso V., **Moro C.**, Martinez-Lage I., and Velay-Lizancos M.* (2019), "Curing temperature: A key factor that changes the effect of TiO_2 nanoparticles on mechanical properties, calcium hydroxide formation and pore structure of cement mortars". *Cement and Concrete Composites*, 104, 103374, Link.

b. Non-refereed Articles:
None

3. Conference Proceedings:

a. Refereed Conference Proceedings:
None

b. Non-refereed:
None

4. Abstracts:
None

5. Reports:
None

6. Book Reviews:
None

7. Essays:
None

8. Poems:
None

9. Short Stories:
None

10. Other Works in Print:

a. Patents:

[1] MMV Lizancos, V Francioso, CM Martinez, MG Lopez-Arias "Self-cleaning cementitious system and method", US Patent App. 18/374,747. https://patentcenter.uspto.gov/applications/18374747.

1. Papers Presented at Professional Meetings:
None

2. Invited Talks, Lectures, and Presentations:
None

3. Consultancies:
None

4. Workshops:
None

5. Other Works not in Print:

a. Works "submitted" or "under review":

*: Corresponding author, G: Graduate student, U: Undergraduate student.

- **Submitted Journal Article:** Adewale, K.G, **Moro, C.***, "The Role of CO_2 Curing in Strengthening Carbonation Resistance of Cementitious Materials", (Under review on *Construction and Building Materials*)
- **Submitted Journal Article:** Danish, A.*, Torres, A., **Moro, C.**, "Carbon Friend or Faux? Assessing 100-Year Dynamic Global Warming Potential of Reclaimed Fly Ash-Slag Geopolymers", (Under review on *Construction and Building Materials*)

b. Works "in progress":

*: Corresponding author, G: Graduate student, U: Undergraduate student.

c. Other Works Not in Print:

Posters and presentations:

With Texas State Affiliation:

*: Corresponding author, G: Graduate student, U: Undergraduate student.

- **Moro C.**, Francioso V., Velay-Lizancos M., "Minimizing Carbon Footprint in Cementitious Materials through the Integration of TiO_2 Nanoparticles". American Concrete Institution (ACI) Fall Convention 2024 in Philadelphia.
- **Moro C.**, Francioso V., Velay-Lizancos M., "Assessing the Impact of TiO_2 Nanoparticles on the Environmental Performance of Mortars with RCA". American Concrete Institution (ACI) Fall Convention 2024 in Philadelphia.
- Salim, M.U.G, **Moro, C.**, "Towards Sustainable Construction: Performance Evaluation of Slag-Cenosphere Geopolymers Under Different NaOH Concentrations" ACI Poster Competition at American Concrete Institution (ACI) Spring Convention 2024 in New Orleans. **[Awarded with 2nd place].**
- **Moro C.**, Francioso V., Lopez-Arias, M., Velay-Lizancos M., "Impact of CO_2 Uptake Rate on the Environmental Performance of Cementitious Composites: A New Dynamic Global Warming Potential Analysis". American Concrete Institution (ACI) Spring Convention 2024 in New Orleans.
- Gonzalez B.U, Grout J.U, **Moro C.,** "Effect of Dual CO_2 Technologies on the Properties of Mortars with Slag Cement", 2023 Sustainability Exposition at Texas State University. [Awarded with 1st place].
- **Moro C.** "Life Cycle Assessment (LCA) of Cement-Based Materials: Importance of Using a Holistic Approach", Low Carbon Seminar. University of Jinan (China), December 5th, 2022.
- **Moro C.** "What If We Can Make Concrete Part of the Solution?", MSEC Seminar and Commercialization Forum, Fall 2022.

With Purdue Affiliation:

- Castillo A., Francioso V., **Moro C.**, Velay-Lizancos M., "Effect of elevated temperatures on Recycled PP fiber-reinforced cementitious composites", Purdue OUR Scholarship Program 2020. [Awarded with the 2nd place PURC 2020 poster competition].
- **Moro C.**, Francioso V., Velay-Lizancos M., "Nano-TiO_2 effect on recycled mortar exposed to high temperatures". 1st Annual Civil Engineering Graduate Research Symposium. Lyles School of Civil Engineering, Purdue University [Research Poster Competition 2019].
- Francioso V., **Moro C.**, Velay-Lizancos M., "Curing temperature: An important factor in the influence of TiO_2 nanoparticles in mortars". 1st Annual Civil Engineering Graduate Research Symposium. Lyles School of Civil Engineering, Purdue University [Research Poster Competition 2019].
- Ikuru A., Francioso V., **Moro C.**, Velay-Lizancos M., "Effect of biomass ashes on the heat resistance of cement paste in function of curing temperature", Purdue Undergraduate Research Conference 2019. [Awarded with the 3rd place oral presentation within the College of Engineering at the PURC 2019].

C. Scholarly / Creative Grants and Contracts:

1. Funded External Grants and Contracts: **(6 Funded: $1.4M Awarded, $333k as PI)**

1.1. Grant: **Moro, C. (PI),** "ERI: Nanoparticle Effects on $CaCO_3$ Formation and Crystallinity in Carbonated Cementitious Systems", National Science Foundation, Awarded $200,000, 2-year project (Sep. 26 – Aug. 28).

1.2. Grant: Torres, A., Aguayo, F., Shi, X., **Moro, C. (co-PI),** Espinoza, W., "Developing a Performance-Based Concrete Overlay Mix Design for Improved Resistance to Early-Age Cracking and Increased Durability", Texas Department of Transportation, Awarded: $255,697, 2-year project (Sept. 26 – Aug. 28).

1.3. Grant: **Moro, C. (PI),** Torres, A., Espinoza Chavez, W., "Refinement of Reinforced Concrete Box Culvert Installation Guidelines", South Dakota Department of Transportation, Awarded: $125,000. 1.5-year project (Mar. 24 – Jun. 26).

1.4. Grant: Shi, X., Torres, A., **Moro, C. (co-PI),** "Cracking-resistant Concrete for Durable Coastal Structures", CREATE UTC - Texas State University, Awarded: $132,061 1.5-year project (Sept. 24 – Feb. 26).

1.5. Grant: Torres, A., Aguayo, F., Shi, X., **Moro, C. (co-PI),** Espinoza, W., "Developing a Performance-Based Concrete Overlay Mix Design for Improved Resistance to Early-Age Cracking and Increased Durability", Texas Department of Transportation, Awarded: $700,371, 3-year project (Sept. 23 – Aug. 26).

1.6. Sponsored Research Agreement: **Moro, C. (PI)**, "Use of Non-Destructive Techniques (NDT) to enhance the learning process in Concrete Industry Management (CIM) courses". CIM Patrons Board, Awarded: $8,000, 5-month project (Jan. 23 – May 23).

2. Submitted, but not Funded, External Grants and Contracts: **(3 Submitted and Under Review: $592k Under Review)**

Submitted (Under Review)

2.1. Grant: **Moro, C. (PI)**, "Optimization of Construction Materials Through Multi-Criteria Decision-Making and Machine Learning", National Institute of Standards and Technology, Requested $186,940, 2-year project.

2.2. White paper: **Moro, C. (PI),** "Innovative Use of Nanomaterials in Portland Limestone Cement (PLC) Concrete for Improved Overall Performance and Sustainability", U.S. Army Engineer Research and Development Center (ERDC), Requested $325,000, 3-year project.

2.3. White paper: **Moro, C. (PI),** Kim, Y.J. "Transforming 3D Printing Technology: Direct Utilization of Ready-Mix Concrete", Concrete Advancement Foundation, Requested $79,868, 1.5-year project.

Submitted (Not Funded)

a. Grant: Velay-Lizancos, M., **Moro, C. (co-PI),** Huang, D., "Evaluating Liquid Deicer Properties and Performance", National Cooperative Highway Research Program (NCHRP), Requested: $750,000, 2.5-year project.

b. Grant: Debs, L., Kisi, K., Das, S., Behzadan, A., Rafe, A., **Moro, C. (co-PI),** Queiroz de Farias, M., Ekin, T., "Emerging Artificial Intelligence-Induced Risks in Highway Construction Quality Assurance", National Cooperative Highway Research Program (NCHRP), Requested: $500,000, 2-year project.

c. Grant: **Moro, C. (PI)**, "Guide for Culvert and Storm Drain Rehabilitation", National Cooperative Highway Research Program (NCHRP), Requested: $449,159, 3-year project.

d. Grant: **Moro, C. (PI),** "CAREER: Integrating Alternative Materials into Alkali-Activated Systems for Enhanced Overall Performance", National Science Foundation, Requested $720,199, 5-year project. **[Selected for NSF CAREER Assistance Program at Texas State University]**

e. Grant: **Moro, C. (PI),** Torres, A., Shi, X., "Evaluation of ITD's Bridge Deck Preservation Strategies", Idaho Transportation Department, Requested: $170,000, 2-year project.

f. Grant: **Moro, C. (PI),** Torres, A., Shi, X., "State of Practice of Pozzolanic Concrete in Infrastructure Projects", TRB Cooperative Research Programs, Requested: $150,000, 1-year project.

g. Pre-proposal: **Moro, C. (PI),** Torres, A., Shi, X., "Strategies to Reduce Alkali-Activator Content in Sustainable Alkali-Activated Materials", American Concrete Institute, Requested: $120,000, 1.5-year project.

h. Grant: Velay-Lizancos, M., **Moro, C. (co-PI),** "Integrated And Scalable Mentorship Program for Continuous Improvement of the US STEM Workforce Readiness", Office of Naval Research, Requested $2M, 5-year project.

i. Grant: **Moro, C. (PI),** "Pavement Marking Selection Process for State and Local Roads", South Dakota Department of Transportation, Requested $115,000, 1.5-year project.

j. Grant: **Moro, C. (PI),** Kisi, K., "Screen-Based Immersive Virtual Labs for Concrete Testing: Enhancing Student Learning and ACI Certification Readiness", National Institute of Standards and Technology, Requested $99,999, 2-year project.

k. Fellowship: **Moro, C. (PI),** "Optimizing CO_2 Capture in Alkali-Activated Materials containing Cenosphere", Portland Cement Association, Requested $35,000, 1.5-year project.

l. Grant: **Moro, C. (PI),** "ERI: Maximizing Sustainability in Alkali-Activated Materials containing Cenosphere: CO_2 Capture Strategies", National Science Foundation, Requested $200,000, 2-year project.

m. Grant: Espinoza Chavez, W., **Moro, C. (co-PI),** Torres, A., "Development of Crushed Quarry Aggregate Surfacing Specifications", South Dakota Department of Transportation, Requested: $130,000. 1.5-year project.

n. Grant: **Moro, C. (PI),** Torres, A., Shi, X., "Functionalization of Recycled Aggregate via Polymer Emulsion for Enhanced Mechanical Properties of Concrete", NEx (An ACI Center of Excellence for Nonmetallica Building Materials), Requested: $119,409. 2-year project.

o. Grant: **Moro, C. (PI)**, "Innovative Oil-Based Solutions for Sustainable Concrete and Industrial Processes", NEx (An ACI Center of Excellence for Nonmetallica Building Materials), Requested: $99,909. 1.5-year project.

p. Grant: **Moro, C. (PI),** Torres, A., Shi, X., "Mitigating Alkali-Silica Reaction in Concrete Pavements Through Nanotechnology ", Arkansas Department of Transportation, Requested: $199,220. 2-year project.

q. White Paper: **Moro, C. (co-PI)**, "Bolstering Resilience for Low Income Communities Exposed to Climate Driven Compound Risks across Travis and Hays Counties in Central Texas", National Science Foundation. Requested: $950,000, 3-year project.

r. White Paper: **Moro, C. (PI)**, "Practices for Effective Use of Nanomaterials in Concrete", National Cooperative Highway Research Program (NCHRP) Synthesis Program.

s. Grant: Shi, X., Torres, A., **Moro, C. (co-PI),** "Synthesis: Carbon Capture and Repurposing By-Product", Texas Department of Transportation, Requested: $64,993. 1-year project.

t. Grant: Shi, X., Torres, A., **Moro, C. (co-PI),** "Develop Concrete Girder Splice Details with Application of Ultra-High-Performance Fiber-Reinforced Concrete (UHPFRC)", Texas Department of Transportation, Requested: $ 132,362. 1-year project.

u. Grant: Espinoza Chavez W., **Moro, C. (co-PI),** Torres, A., "Prevention of Unauthorized Freeways Exits and Entrances", Texas Department of Transportation, Requested: $64,994. 1-year project.

v. Sponsored Research Agreement: **Moro, C. (PI),** Penlerick, D.R., Torres, A., "Incorporating Graphene Nanoparticles into Concrete Materials for Improved Durability and Overall Sustainability", Nabors, Requested $150,000, 2-year project.

w. Sponsored Research Agreement: **Moro, C. (PI)**, Torres, A., "Incorporating E5TM Colloidal Nano-Silica (CNS) into Concrete Materials for Improved Alkali-Silica Reaction (ASR) Resistance and Drying Shrinkage", Specification Products, Requested $150,000, 2-year project.

x. Grant: **Moro, C. (PI),** Torres, A., Espinoza Chavez, W., Shi, X., Aguayo, F., "Utilization of Alternative Supplementary Cementitious Materials in Highway Applications", National Cooperative Highway Research Program (NCHRP), Requested $ 749,994. 3-year project.

y. Grant: **Moro, C. (PI)**, "ERI: Enhanced Resistance to Elevated Temperatures of Ultra-High-Performance Concrete for Improved Sustainability", National Science Foundation, Requested $199,989, 2-year project.

z. Grant: **Moro, C. (PI),** Torres, A., Espinoza Chavez, W., Kisi, K., Shi, X., Kim, Y.-J., Yeon, J., Asiabanpour, B., Penlerick, D.R., "Advancing Innovation in Construction: Acquiring 3D

Concrete Printer Systems for Texas State University", Department of Defense, Requested $641,050. 2-year project.

aa. Grant: **Moro, C. (PI)**, Torres, A., "Development and characterization of Ultra-High-Performance Concrete (UHPC) using nonmetallic fibers", NEx (An ACI Center of Excellence for Nonmetallica Building Materials), Requested $75,000, 1-year project.

bb. Grant: **Moro, C. (PI)**, "State of the art report on the use of nanopolymers/ nanocomposites/ nanotechnology in building and construction", NEx (An ACI Center of Excellence for Nonmetallica Building Materials), Requested $30,000, 1-year project.

cc. Grant: **Moro, C. (PI),** Torres, A., Kim, Y.K., Penlerick, D.R., " Optimizing Dispersion for Enhanced Sustainability and Durability of Fiber Reinforced Concrete (FRC) Pavements with Nanomaterials", Arkansas Department of Transportation, Requested $199,999. 2-year project.

dd. Grant: **Moro, C. (PI),** Torres, A., Shi, X., Espinoza Chavez, W., " Inclusion of Alternative Supplementary Cementitious Materials in Performance-Based Concrete Mix Designs to Enhance Durability and Resistance to Shrinkage", U.S. Army Engineer Research and Development Center (ERDC), Requested $450,000.

ee. White Paper: **Moro, C. (PI)**, Kim, Y.J., "Optimizing Dispersion for Enhanced Sustainability and Durability of Fiber-Reinforced Concrete (FRC) with Nanomaterials", NEx (An ACI Center of Excellence for Nonmetallica Building Materials), Requested $94,995, 1.5-year project.

ff. Grant: **Moro, C. (PI),** Torres, A., Shi, X., "Evaluation of Proper Distribution of Nanomaterials for Their Use in Slip-Form Concrete Pavement", National Road Research Alliance (NRRA), Requested $150,000, 2-year project.

gg. Grant: Shi, X., Torres, A., **Moro, C. (co-PI)**, "Feasibility study of Bio-waste materials (Corn Ash) as Supplementary Cementitious Materials (SCMs) in Concrete", National Road Research Alliance (NRRA), Requested $150,000, 2-year project**.**

hh. Grant: **Moro, C. (PI)**, Hwang, S., "Climate-Smart Innovation in Concrete Sustainability with the Use of Reclaimed Water in Pervious Concrete Production", Aurora Pooled Fund Program, Requested $57,500, 1-year project**.**

ii. Grant: **Moro, C. (PI)**, Torres, A., " Economic Assessment of CO_2-Cured Mortars with High Volume Recycled Materials", American Concrete Institute (ACI) Foundation. Concrete Research Council (CRC), Requested $57,500, 1-year project. **Note:** Obtained proposal support from ACI Committee 130 - Sustainability of Concrete and ACI Committee 555 – Concrete with Recycled Materials

jj. Grant: **Moro, C. (PI)**, Torres, A., "Identification of Fly Ash Alternatives to be used in Highway Construction", Arizona Department of Transportation, Requested $25,000, 1-year project.

kk. White Paper: **Moro, C. (PI)**, Torres, A., "Improving the Sustainability of Cementitious Materials with High Percentages of Calcium Sulfoaluminate Cement, Slag, and CO_2 Curing", NEx (An ACI Center of Excellence for Nonmetallica Building Materials), Requested: $79,851, 1-year project.

ll. Grant: **Moro, C. (PI)**, Torres, A., "Regional Low Embodied Carbon Concrete Mixture Development and Constructability Review", National Ready-Mix Concrete Association (NRMCA), Requested $28,500, 6-month project.

mm. Grant: Torres A., **Moro, C. (co-PI)**, "Ultra High Performance Concrete University Transportation Center - ULTRAns - Tier 1 University Transportation Center", U.S. Department of Transportation; Subcontract with New Mexico State University; Requested: $105,000; 1-year project.

nn. Sponsored Research Agreement: Torres, A., **Moro, C. (co-PI)**, Shi, X., "Incorporating Plant Based High Purity Graphene into Concrete Materials for Improved Performance; Phase 1 Testing", SurgePower (local industry company) Requested $30,000, 4-month project.

oo. Sponsored Research Agreement: **Moro, C. (PI)**, Shi, X., Torres, A., "Improving the Workability, Finish Quality, and Freeze-Thaw Durability of Concrete for Plungie's Products", Plungie Concrete Swimming Pool (US/Australia Based Company), Requested $70,000, 1-year project.

pp. Grant: Torres, A. (PI), Shi, X. (Co-PI), **Moro, C. (co-PI),** "Evaluate Nanomaterials in Concrete for Improved Durability", Texas Department of Transportation, Submitted Spring 2022, Requested $572,042, 3-year project.

3. Funded Internal Grants and Contracts: **(3 Funded: $76k Awarded, $16k as PI, $50k as co-PI)**

3.1. Grant: **Moro, C. (PI)**, "Exploring CO_2 Mineralization for Enhanced Fire Resistance in Cement-Based Materials", Research Enhancement Program (REP), Texas State University, Awarded: $8,000, 1.5-year project (January 25 – May 26).

3.2. Grant: **Moro, C. (PI)**, "Active Carbonation of Cement-Based Materials to Enhance Global Sustainability", Research Enhancement Program (REP), Texas State University, Awarded: $8,000, 1.5-year project (January 23 – May 24).

3.3. Grant: Shi, X., Torres, A., **Moro, C. (co-PI),** Ozbakkaloglu, T., Yeon, J.H., Kim, Y.J., Lee, S.J., Kim, H., "Acquisition of a flexural fixture for Instron 5989 Test Instrument", Texas State University, Awarded: $59,848, November 2022,

4. Submitted, but not Funded, Internal Grants and Contracts:

Submitted (Under Review)

Submitted (Not Funded)

a. Grant: Moro, C. (PI), Miller, C.F., "Identifying Gender Barriers in the Construction Industry Across Multiple Settings", TXST Center for Analytics and Data Science (CADS) Research Grants, Texas State University. Submitted December 2023. Requested $8,000.

D. Scholarly / Creative Fellowships, Awards, Honors:

Awarded by students:

Title	Description	Entity	Date

3MT Competition Finalist	Master student Kehinde Adewale was finalist in the 3MT Competition	Texas State University	Fall 2024
TACA 2024 Innovative Concrete Competition	Highlight a participant's ability to produce a lightweight concrete with enough strength	Texas Aggregates & Concrete Association	Spring 2024
Bounita Favorite Society of Plastic Engineers South Texas Section Endowed Scholarship	Ph.D. student Usama Salim was recognized in the spring awards ceremony	Texas State University	Spring 2024
Student of the Year Award	Ph.D. student Usama Salim was nominated for the graduate student of the year	Texas State University	Spring 2024
Student Poster Competition Win (2nd Place)	Ph.D. student Usama Salim won 2nd place at the ACI Poster Competition	American Concrete Institute	Spring 2024
TACA 2023 Innovative Concrete Competition	Highlight a participant's ability to produce a very specific strength with a high volume of recycled materials in the concrete.	Texas Aggregates & Concrete Association	Spring 2023
Student Poster Competition Win (1st Place)	Given by the Office of Sustainability during the 2023 Sustainability Exposition	Texas State University	Spring 2023

Awarded by me:

Title	Description	Entity	Date
Best Reviewer Award	Best Reviewer 2025 Award	Materials and Structures journal	2025
Fall 2021 Civil Engineering Best Dissertation Award	Award that recognizes the best dissertation of the Lyles School of Civil Engineering	Purdue University	Spring 2022
Purdue University Graduate School Summer Research Grant	Given by the Purdue College of Engineering, designed to provide research support for doctoral students who served exclusively as teachers the two preceding academic semesters	Purdue University	Summer 2021
William L. Dolch Graduate Scholarship	Given to a graduate student in civil engineering pursuing an advanced degree in the field of materials	Purdue University	Fall 2020
Award ACPA Concrete Pavement & Materials Science	Given to graduate students with an interest in concrete pavement and materials science, based on academic merit	Purdue University	Fall 2019
Award "Premio Puentes 2014/2015"	Best Final Project in Civil Engineering Technology at University of A Coruña	University of A Coruña	December 2015

E. Scholarly / Creative Professional Development Activities Attended:
None

F. Media Recognition:
None

IV. SERVICE

A. Institutional

1. University:

Texas State University	Date
Sustainability Council	2023 - Present
Attend Texas State Commencements	2022 - Present
Attend Bobcat Days	2022 - Present
Member of Sustainability Studies Steering Committee	2025 - Present
Organization of TRACS Summit (Sustainability conference at Texas State University)	Spring 2025
New Tenure-Track Orientation: Round Table "Becoming a Productive Scholar and Researcher"	August 2024
Participant in the Office Hours @ TXST Podcast	Spring 2023
Participant in the Try @ TXST Podcast	Spring 2023
Graduate Advisor, 2023 Sustainability Exposition	Spring 2023
Scholarship and Teaching Excellence Program	Aug. 2022 – May 2023

2. College:

Texas State University – College of Science and Engineering	Date
Graduate Faculty	2022 - Present
Undergraduate Advising	2022 - Present
Attend 2025 TXST STEM Conference (Poster session)	March 2025
Attend CREATE Faculty Mentoring Workshop	May 2024
Attend STAR Showcase - MSEC Program	May 2024
Attend STAR Showcase - MSEC Program	November 2023
Attend STAR Showcase - MSEC Program	November 2022
Presenter at MSEC Seminar	Fall 2022

5. Department/School:

Texas State University – Engineering Technology	Date
Concrete Canoe Faculty Advisor	2025 - Present
Member of Curriculum Committee	2024 - Present
Advising CIM students (around 40-45) for Registration	2024 - Present
Member of CIM Scholarship Committee	2022 - Present
ACI Student Competition	2022 - Present

Attend ACI Meetings to Promote CIM Program and Student Competition	2022 - Present
Attend CIM Patrons Meetings	2022 - Present
Attend CIM Program Meetings	2022 - Present
CIM Faculty Position Search Committee (Chair)	2026
Assistant Professor Positions (2) Search Committee	2025
IRL Technical Staff Search Committee	2025
CIM Faculty Position Search Committee	2025
TECH 2351/CSM 3360 Teaching Methods Group	2023 - 2025
Participant in the ATMAE accreditation visit	April 2024
Organization of seminar talk for Dr. Bruno Fong-Martinez	April 2024
Attend ICRI Conventions to Promote CIM Program	2023 - 2024
TACA Student Competition	2022 - 2024
Judge in the Final Presentation of CSM 4370 - Residential Capstone	December 2022
CIM Director Search Committee	Fall 2022
Presenter at TACA Teacher Workshop to promote the CIM program	July 2022
Travel to World of Concrete Convention for CIM/NSC Meeting	2022

B. Professional:

	Date
Technical Advisory Panel for the project "Use of Innovative Sustainable and Durable Materials in Concrete Pavements" in the National Road Research Alliance (NRRA)	2025 - Present
Journal of Building Engineering – Reviewer	2025 – Present
Cement and Concrete Composites – Reviewer	2024 – Present
Materials Today Communications – Reviewer	2024 – Present
Technical Advisory Panel for the project "Reducing Embodied Carbon with Mineral-Blended Polymeric Microspheres" in the National Road Research Alliance (NRRA)	2023 - Present
National Road Research Alliance (NRRA) Rigid Team	2023 - Present
Construction and Building Materials – Reviewer	2023 - Present
Sustainable Materials and Technologies – Reviewer	2023 – Present
Materials and Structures – Reviewer	2022 – Present
MDPI (several journals) – Reviewer	2022 – Present
Participant in NSF Panel	2024
Participant in NSF Panel	2024
Speaker at ACI Convention in Philadelphia	November 2024
Speaker at ACI Convention in New Orleans	March 2024
Speaker at ACI San Antonio Chapter: February General Meeting	February 2024
Reviewer of CRC proposal for ACI Committee 555	Fall 2023
ACI Professors' Workshop	July 2023
Presenter at Low Carbon Seminar. University of Jinan (China)	Dec. 5th, 2022

ACI Eco-concrete student competition, Volunteer to review students reports	2021
ASCE National Concrete Canoe Competition, Graduate student volunteer to help undergraduate students	2019
ASCE Materials Competition, Materials Design Competition 2019 Great Lakes Student Conference. [Awarded - 2nd place] (undergraduate competitions). Graduate student volunteer to help undergraduate students	2019

C. Community:

	Date
Volunteer, Mentoring at San Antonio Smart Competition Research Mentoring.	2024
Volunteer, Oak Park and River Forest High School (O.P.R.F.H.S.) Research Mentoring.	2022 - 2023

D. Organization Memberships:

	Date
ACI Committee 130-H: Climate Change Impacts on the Sustainability of Concrete – Voting Member	2023 - Present
ACI Committee 241: Nanotechnology in Concrete – Voting Member	2022 - Present
ACI Committee 555: Concrete with Recycled Materials – Voting Member	2022 - Present
ACI Committee 130: Sustainability in Concrete – Associate Member	2022 - Present
Member of the American Concrete Institution (ACI)	2018 - Present
Member of the Spanish Professional Engineering	2017 - Present

E. Service Honors and Awards:

	Date
Materials and Structures Best Reviewer Award 2022	2022

F. Service Grants and Contracts:
None

G. Service Professional Development Activities Attended:
None