Carlos Moro

Ph.D. Candidate,
Lyles School of Civil Engineering
Purdue University
550 W Stadium Ave, West Lafayette, IN
Email : cmoromar@purdue.edu
Phone : (765) 714-1604

EDUCATION

Purdue University — West Lafayette, IN
Ph.D. - Civil Engineering, Materials Area — Expected 2021
Ph.D. Dissertation: Influence of nano-TiO_2 addition on the environmental performance of cementitious composites: a holistic approach

University of A Coruña — A Coruña, SPAIN
Master of Science, Civil Engineering — 2017
MS Thesis: Project of an indoor athletics track

University of A Coruña — A Coruña, SPAIN
Bachelor of Science, Civil Engineering Technology — 2015

HONORS AND AWARDS

Purdue University Graduate School Summer Research Grant — Purdue University, IN
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 — Summer 2021

Estus H. And Vashti L. Magoon Award for Excellence in Teaching — Purdue University, IN
Recognizes outstanding teaching assistants and instructors — Spring 2021

Lyles TA Fellowship — Purdue University, IN
Recognizes outstanding graduate students with a promising future in academia — Spring 2021

William L. Dolch Graduate Scholarship — Purdue University, IN
Given to a graduate student in civil engineering pursuing an advanced degree in the field of materials — Fall 2020

Award ACPA Concrete Pavement & Materials Science — Purdue University, IN
Given to graduate students with an interest in concrete pavement and materials science, based on academic merit — Fall 2019

Award "Premio Puentes 2014/2015" — A Coruña, SPAIN
Best Final Project in Civil Engineering Technology at University of A Coruña — December 2015

PUBLICATIONS

Peer-Reviewed Journal Papers:

[8] **Moro C.**, Francioso V., Velay-Lizancos M., *"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, Vol. 123, (2021) 104160, https://doi.org/10.1016/j.cemconcomp.2021.104160.

[7] **Moro C.**, Francioso V., Velay-Lizancos M., *"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, Vol. 275, (2021) 122131, https://doi.org/10.1016/j.conbuildmat.2020.122131.

[6] Francioso V., **Moro C**., Velay-Lizancos M., "*Effect of recycled concrete aggregate (RCA) on mortar's thermal conductivity susceptibility to variations of moisture content and ambient temperature*". Journal of Building Engineering, Vol. 43, (2021) 103208, https://doi.org/10.1016/j.jobe.2021.103208.

[5] Francioso V., **Moro C.**, Castillo A., Velay-Lizancos M., *"Effect of elevated temperature on flexural behavior and fibers-matrix bonding of recycled PP fiber-reinforced cementitious composite".* Construction and Building Materials, Vol. 269, (2021) 121243, https://doi.org/10.1016/j.conbuildmat.2020.121243.

[4] **Moro C.**, El-Fil H., Francioso V., Velay-Lizancos M., *"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, Vol. 267, (2021) 120960, https://doi.org/10.1016/j.conbuildmat.2020.120960.

[3] **Moro C.**, Francioso V., Schrager M., Velay-Lizancos M., "*TiO_2 nanoparticles influence on the environmental performance of natural and recycled mortars: A life cycle assessment*". Environmental Impact Assessment Review, Vol. 84, (2020) 106430, https://doi.org/10.1016/j.eiar.2020.106430.

[2] **Moro C.,** Francioso V., Velay-Lizancos M., "*Nano-TiO_2 effects on high temperature resistance of recycled mortars*". Journal of Cleaner Production, Vol. 263, (2020) 121581, https://doi.org/10.1016/j.jclepro.2020.121581.

[1] Francioso V., **Moro C.**, Martinez-Lage I., Velay-Lizancos M., *"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, Vol. 104, (2019) 103374, https://doi.org/10.1016/j.cemconcomp.2019.103374.

Abstracts, Presentations, and Posters:

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].

TEACHING EXPERIENCE

Purdue University — West Lafayette, IN
Lyles TA — Fall 2021
Assistantship offered to experienced TAs in the Lyles School of Civil Engineering to assist a professor with a course and instruct and coordinate others TAs
CE 335: Civil Engineering Materials

Purdue University — West Lafayette, IN
Lyles TA Fellow. — Spring 2021
Recognizes outstanding graduate students with a promising future in academia. It also allowed me to co-instruct the course and develop active learning activities.
CE 335: Civil Engineering Materials

Purdue University — West Lafayette, IN
Teaching Assistant — Fall 2020
CE 335: Civil Engineering Materials

Purdue University — West Lafayette, IN
Teaching Assistant — Spring 2020
CE299: Thermal and Energy Science for Civil Engineers

WORK EXPERIENCE

K2 INGENIERIA S.L. — A Coruña, SPAIN
Civil Engineer — July 2016 – September 2016
May 2017 – July 2018

PROFESSIONAL DEVELOPMENT

Professional Affiliations

Member of the American Concrete Institution (ACI).

Member of the Spanish Professional Engineering.

Mentoring Experience

Undergraduate Student Mentor, Individual Studies and OUR Scholarship Program — Purdue University, IN, Fall 2018 - Summer 2021

Mentoring 8 undergraduate students:

Bibigul Zhaksybay (Undergraduate student in Civil Engineering, Purdue University)
Elena Cruz (Undergraduate student in Civil Engineering, Purdue University)
Mathias Bermeo (Undergraduate student in Civil Engineering, Purdue University)
Alberto Castillo (Undergraduate student in Civil Engineering, Purdue University)
Molly Schrager (Undergraduate student in Civil Engineering, Purdue University)
Alice Ikuru (Undergraduate student in Civil Engineering, Purdue University)
Jose Ignacio Hidrowoh Cabrera (Undergraduate student in Civil Engineering, Purdue University)
Adam Bernard Macanowicz (Undergraduate student in Civil Engineering, Purdue University)

Service Activities

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, Graduate student volunteer to help undergraduate students, 2019

LANGUAGES

Spanish (mother tongue), English (fluent), Portuguese (fluent).