Christos G. Papakonstantinou

Assistant Professor
Director of the Concrete Technology and Structures Laboratory
University of Thessaly
Department of Civil Engineering
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Education

Ph.D., Civil Engineering (Structural Engineering); January 2003
Rutgers, the State University of New Jersey, New Brunswick, NJ
Dissertation Title: High Temperature Structural Sandwich Panels

M.S., Civil Engineering (Structural Engineering); May 2000
University of South Carolina, Columbia, SC
Thesis Title: Fatigue Performance of Reinforced Concrete Beams Strengthened with Glass Fiber Reinforced Polymer Composite Sheets

B.S., Civil Engineering; September 1995
Aristotle University of Thessaloniki, Thessaloniki, Greece

Working Experience

2018-today Assistant Professor (tenured)
University of Thessaly
Department of Civil Engineering

2015-2018 Assistant Professor (tenure track)
University of Thessaly
Department of Civil Engineering

2014- today Hellenic Open University
External Teaching Staff

2012-2015 Faculty of Engineering
Higher Colleges of Technology
Department of Civil Engineering

Abu Dhabi Men's College, UAE

2010 - 2012 Visiting Professor
University of Thessaly
Department of Civil Engineering

2010 – 2011 Aristotle University of Thessaloniki
Department of Civil Engineering
Research Associate

2008 - 2009 University of Massachusetts at Dartmouth
Department of Civil and Environmental Engineering
Associate Professor

2003 - 2008 University of Massachusetts at Dartmouth
Department of Civil and Environmental Engineering
Assistant Professor

2000 -2003 Rutgers, the State University of New Jersey, New Brunswick
Graduate Research Assistant

Project: Development and Testing of High Temperature Sandwich Structural Elements, sponsored by FAA
Advisor: Prof. P.N. Balaguru

1998-2000 University of South Carolina, Columbia
Graduate Research Assistant

Project: Development and Testing of Fiber Reinforced Composite Overlays, sponsored by DoE
Advisor: Prof. M.F. Petrou

1997–1998 Ergodesign Studio
Structural Engineer / Architect

Worked in reinforced concrete building seismic structural design, rehabilitation and remodeling of existing buildings. Supervised construction of several new reinforced concrete buildings, as well as rehabilitation of old structures.

1996–1997 Greek Army
Sergeant - Engineer

Implemented training course for new recruits.
Worked as supervisor engineer in rehabilitation of existing buildings.

1995-1996 Akmi
Design Engineer

Worked in reinforced concrete building seismic structural design.

1994-1995 Aristotle University of Thessaloniki
Research Assistant

Project: Energy Design and Solar Energy Utilization, funded by European Union
Advisor: Prof. M. Papadopoulos (Laboratory of Building Construction and Building Physics)

Courses Taught

University of Thessaly

Structural Materials
Advanced Structural Materials
Reinforced Concrete (Dept. o Architecture)
Experimental Mechanics
Reinforced Concrete III
Advanced Mechanics of Materials

Higher Colleges of Technology

Structural Steel Design and Detailing II
Introduction to Transportation
Applied Cad and Drafting
Transportation Logistics
Civil Engineering Contracts

UMass Dartmouth
EGR-241 Engineering Mechanics I- Statics
CEN-161 Civil Engineering Design Graphics
CEN-202 Mechanics of Materials
CEN-212 Mechanics of Materials Laboratory
CEN-310 Construction Materials Laboratory
CEN-516 Advanced Reinforced Concrete Analysis/Design (Graduate Level Course)
CEN-517 Prestressed Concrete Analysis/Design (Graduate Level Course)
CEN-595 Advanced Structural Analysis (Graduate directed study)

Research Experience

2018-2019 University of Thessaly
Research Project Title: "Confinement of "green" concrete using composite materials"

2009-2012 Aristotle University of Thessaloniki
Research Project Title: "Shear Reinforcement of reinforced concrete elements subjected to Earthquake type loading using Steel Reinforced Polymer Composites"
Role : Co-Principal Investigator

2007-2009 University of Massachusetts at Dartmouth
Research Project Title: "Rehabilitation of Reinforced Concrete Elements Using Lightweight Fireproof Composites"

Role: Principal Investigator

Sponsored by UMass/Joseph P. Healey Endowment Award

2005 – 2007 University of Massachusetts at Dartmouth
Research Project Title: "Investigation of Material Properties of Portland Cement Concrete Combined with Recycled Asphalt Pavement (RAP)"

Role: Principal Investigator

Sponsored by UMass Dartmouth College of Engineering

2005 – 2006 University of Massachusetts at Dartmouth
Research Project Title: “Secure Sensor Networks Application to Safety and Maintenance of Railways”

Role: Co-Investigator

Sponsored by UMassDartmouth College of Engineering

2003 – 2005 University of Massachusetts at Dartmouth
Research Project Title: “Hybrid Titanium – High Modulus Carbon Laminates”

Role: Principal Investigator

Sponsored by National Science Foundation (NSF)

2003 - 2004 University of Massachusetts at Dartmouth
Research Project Title: “Utilization of Recycled Rubber in Concrete Mixtures”

Role: Principal Investigator

Sponsored by UMass/Joseph P. Healey Endowment Award

2003 - 2004 University of Massachusetts at Dartmouth
Research Project Title: “Evaluation of Berkley Bridge”

Role: Co-Investigator

Sponsored by UMass Public Service Endowment Award

2000 -2003 Rutgers, the State University of New Jersey, New Brunswick
Research Project: “Development and Testing of High Temperature Sandwich Structural Elements”
Role: Research Assistant

Sponsored by Federal Aviation Administration

1998-2000 University of South Carolina, Columbia
Research Project: “Development and Testing of Fiber Reinforced Composite Overlays”
Role: Research Assistant

Sponsored by Department of Energy

1994-1995 Aristotle University of Thessaloniki
Project: “Energy Design and Solar Energy Utilization”
Role: Research Assistant

Sponsored by European Union (Energy Commission)

Publications; Manuscripts

Christos G. Papakonstantinou, Michael F. Petrou, and Kent A. Harries, "Fatigue Behavior of RC Beams Strengthened with GFRP Sheets". ASCE Journal of Composites for Construction, Volume 5, Issue 4, November 2001, pp. 246-253

Christos G. Papakonstantinou, Perumalsamy N. Balaguru and Richard E. Lyon. "Comparative Study of High Temperature Composites". Composites Part B: Engineering, Volume 32, Issue 8, December 2001, pp. 637-649

Christos G. Papakonstantinou, Perumalsamy N. Balaguru and Michael F. Petrou. "Analysis of Reinforced Concrete Beams Strengthened with Composites Subjected to Fatigue Loading". American Concrete Instiurte (ACI) Special Publication SP 206-3 "Concrete: Material Science to Application", Detroit, April 2002, pp. 41-60

C. G. Papakonstantinou, and Perumalsamy N. Balaguru. "Fatigue Behavior of Polysialate Structural Composites", ASCE Journal of Materials, April 2007, Volume 19, Issue 4, pp.321-328

C. G. Papakonstantinou and M. Tobolski. "Use of Waste Tire Steel Beads in Portland Cement Concrete Cement and Concrete Research", Cement and Concrete Research, Volume 36, Issue 9, September 2006, pp. 1686-1691.

Christos G. Papakonstantinou, James Giancaspro, Perumalsamy N. Balaguru. "Fire Response and Mechanical Behavior of Polysialate Syntactic Foams", Composites Part A: Science and Manufacturing, *Volume 39, Issue 1*, *January 2008*, *Pages 75-84.*

James Giancaspro, **Christos G. Papakonstantinou**, and Perumalsamy N. Balaguru "Fire Resistance of Inorganic Sawdust Biocomposite", Journal of Composite Science and Technology, June 2008, Vol 68/7-8, pp 1895-1902

James Giancaspro, **Christos G. Papakonstantinou**, Mohammed Nazier, and Perumalsamy Balaguru. "Aerospace Technology for Strengthening of Bridges", Construction and Building Materials, Volume 23, Issue 2, February 2009, pp 748-757.

Christos G. Papakonstantinou and Konstantinos Katakalos. "Mechanical behavior of high temperature hybrid carbon fiber/titanium laminates", ASME Journal of Engineering Materials and Technology, April 2009, Volume 131, Issue 2, 021008 (10 pages)

Konstantinos Katakalos and **Christos G. Papakonstantinou**, "Fatigue of reinforced concrete beams strengthened with steel reinforced inorganic polymers (SRiP)", ASCE Journal of Composites for Construction, Vol. 13, No. 2, April 2009

James Giancaspro, **Christos G. Papakonstantinou**, and Perumalsamy N. Balaguru "Mechanical behavior of Fire Resistant Biocomposite", Composites Part B: Engineering, Volume 40, Issue 3, April 2009, Pages 206-211.

Christos G. Papakonstantinou and Konstantinos Katakalos. "Flexural Behavior of Reinforced Concrete Beams strengthened with a hybrid retrofit system", Structural Engineering and Mechanics, Vol.31, No.5, 2009.

James Giancaspro, **Christos G. Papakonstantinou**, and Perumalsamy N. Balaguru, "Flexural Behavior of Inorganic Hybrid Composites with E-Glass and Carbon Fibers", Journal of Engineering Materials and Technology vol. 132, 2010

James Giancaspro, Perumalsamy N. Balaguru and **Christos G. Papakonstantinou**, "Analysis and design

recommendations of strengthened prestressed concrete beams with fiber composite overlays", *American* Concrete *Institute ACI*-SP272-5*,* vol. 272, October 1, 2010, pages 87-108

Christos G. Papakonstantinou and Perumalsamy N. Balaguru, "Influence of FRP Confinement on Bond Behavi of Corroded Steel Reinforcement", Cement and Concrete Composites, Vol. 33, Issue 5, May 2011, Pages 611-62

G.C. Manos, Konstantinos Katakalos, and **Christos G. Papakonstantinou**, "Shear Behavior of Rectangular Bear Strengthened with either Carbon or Steel Fiber Reinforced Polymers", Applied Mechanics and Materials, Vol. 82 July 2011, Pages 571-576.

G. C. Manos, Konstantinos Katakalos, G. Koidis, **C. G. Papakonstantinou**: "*Shear Strengthening of R/C Beams with FRP Strips and Novel Anchoring*", Journal of Civil Engineering Research, Vol. 2, Issue 6, 11/2012, Pages 73 83.

C.G. Papakonstantinou, D. Bekiaris: "*Comparison of Shear Design Models for Reinforced Concrete Beams Strengthened with Inorganic Matrix Composite Materials",* International Journal of Materials Mechanics and Manufacturing (IJMMM), 2/2018, Vol. 6, Issue 1, Feb. 2018, Pages 8-14.

C.G Papakonstantinou: *"Resonant column testing on Portland Cement Concrete (PCC) containing Recycled Asphalt Pavement (RAP)",* Construction and Building Materials, Volume 173, 10 June 2018, Pages 419-428

G.C. Manos, K. Katakalos; **C.G. Papakonstantinou:** *"Seismic Retrofit of R/C T-Beams with Steel Fiber Polymer under Cyclic Loading Conditions*", *Buildings,* **2019**, *9*(4), 101; **https://doi.org/10.3390/buildings9040101**

Publications; Book Chapters

Christos G. Papakonstantinou and Perumalsamy N. Balaguru, "Use of Geopolymer matrix for high temperature resistant hybrid laminates and sandwich panels." G*eopolymers, Green Chemistry and Sustainable Development Solutions*, Geopolymer Institute, Editor: J. Davidovits, pp. 201-207, 2006.

Christos G. Papakonstantinou and Perumalsamy N. Balaguru. "Bond Characteristics and Structural Behavior of Inorganic Polymer FRP". Measuring, Monitoring and Modeling Concrete Properties, Editor: M.S. Konsta-Gdoutos, Springer Publishing, July 2006

Invited Papers/Presentations

C.G.Papakonstantinou and P.N. Balaguru, "Use of geopolymer matrix for high temperature resistant hybrid laminates and sandwich panels." International Workshop on Geopolymers and Geopolymer Concrete GCC 2005, Perth, Australia, September 2005 (Sponsored by NSF).

C.G. Papakonstantinou, "Protective Coatings with Nano-Constituent Materials", 2nd International Symposium on Nanotechnology in Construction, Bilbao, Spain, November 2005 (Sponsored by NSF).

Publications; Conference Proceedings

M.F. Petrou, J. Aidoo, K.A. Harries, and **C.G. Papakonstantinou**, "Fatigue Behavior of Reinforced Concrete

Beams/Slabs Strengthened with GFRP/CFRP Sheets", Proceedings of the Fifth NSF National Workshop on Bridge Research in Progress, Minneapolis, Minnesota, Oct. 8-10, 2001, pp 51-54.

J.A. Giancaspro, **C.G. Papakonstantinou**, P.N. Balaguru, R.E. Lyon. "Inorganic Matrix for Fireproof Composites and Sandwich Plates", Proceedings of the Third Triennial Fire and Cabin Safety Research Conference, Federal Aviation Administration, October 2001, Atlantic City, NJ

Christos G. Papakonstantinou, Perumalsamy N. Balaguru and Richard E. Lyon. "Hybrid Composite Panels with Fireproof Lightweight Core and Carbon Fiber Skin". International SAMPE Symposium (Proceedings), v 47 II, 2002, p 1011-1021

K.W. Lee, **C.G. Papakonstantinou** and P.N. Balaguru. "High Strength Composites for Strengthening and Protective Coatings", 9th International Conference of Composites Engineering, July 1-6, 2002, San Diego, California

C.G. Papakonstantinou and P.N. Balaguru, "High Temperature Lightweight Polysialate Syntactic Foams", 10th International Conference on Composites /Nano Engineering, July 20-26, 2003, New Orleans, LA, pp.545-546.

C.G. Papakonstantinou and P.N. Balaguru, "Effect of Microsphere Size on the Properties of a Geopolymer Syntactic Foam". *New Horizons for Materials and Processing Technologies,* Proceedings of the 2005 International SAMPE Symposium, v 50, 2005.

C.G. Papakonstantinou and L. Tsang, "An early investigation of High modulus Carbon Fiber/Titanium Laminates", *New Horizons for Materials and Processing Technologies*, Proceedings of the 2005 International SAMPE Symposium, v 50, 2005.

C.G. Papakonstantinou and P.N. Balaguru, "Fire Testing of Geopolymer based Syntactic Foams". *Creating New Opportunities for the World Economy,* Proceedings of the 2006 International SAMPE Symposium, v 51, 2006.

E. Aboelela, W. Edberg, **C. Papakonstantinou**, and V. Vokkarane: "Wireless Sensor Network Based Model for Secure Railway Operations", International Workshop on eSafety and Convergence of Heterogeneous Wireless Networks (eSCo-Wi '06) in conjunction with 25th IEEE International Performance, Computing, and Communications Conference (IPCCC 2006), Phoenix, Arizona, pp. 623-628, April 10-12, 2006

C.G. Papakonstantinou and P.N. Balaguru, "Geopolymer Protective Coatings for Concrete ". Proceedings of the 2007 International SAMPE Symposium, Baltimore, MD, v 52, 2007.

Christos G. Papakonstantinou and Konstantinos Katakalos. "A Hybrid Strengthening System for the Rehabilitation of Reinforced Concrete," SAMPE '07 in Long Beach, CA May 18-22, 2008.

Christos G. Papakonstantinou and Konstantinos Katakalos. "Innovative Retrofit System with Nano-Constituent Materials for Reinforced Concrete". NANO 2008, *9th International Conference on Nanostructured Materials***,** Rio de Janeiro, Brazil, June 01-06, 2008.

Christos G. Papakonstantinou and Konstantinos Katakalos. "Fireproof strengthening system for rehabilitation of reinforced concrete", 4th International Conference on Structural Defects and Repair, , Aveiro, Portugal, 26-28 June 2008.

Christos G. Papakonstantinou and Konstantinos Katakalos. "Durability of reinforced concrete beams strengthened with a fireproof strengthening system", 4th International Conference on Structural Defects and Repair, Aveiro, Portugal, 26-28 June 2008.

G. C. Manos, Konstantinos Katakalos, **Christos G. Papakonstantinou**, G. Koidis. "*Enhanced Repair and Strengthening of Reinforced Concrete Beams Utilizing External Fiber Reinforced Polymer Sheets and Novel Anchoring Devices*." 15th World Conference of Earthquake Engineering – 15th WCEE 2012, Lisbon, Portugal; 09/2012

Christos G. Papakonstantinou, Konstantinos Katakalos, George C. Manos: *Reinforced Concrete T-beams strengthened in shear with steel fiber reinforced polymers*. 6th International Conference on FRP Composites in Civil Engineering - CICE 2012, Rome, Italy; 06/2012

Konstantinos Katakalos, George C. Manos, **Christos G. Papakonstantinou**: *Comparison between carbon and steel fiber reinforced polymers with or without anchorage*. 6th International Conference on FRP Composites in Civil Engineering - CICE 2012, Rome, Italy; 06/2012

Christos G. Papakonstantinou and Dimitris Bekiaris. *Shear Resistance Design of Strengthened Reinoforced Concrete Beams with Inorganic Polymer Composite Materials.* 2nd International Conference on Building Materials and Construction, ICBMC, Hanoi, 2/2017.

Christos G. Papakonstantinou, Christina Kakae and Nikolaos Gryllakis: *Can existing design codes be used to design flexural reinforced concrete elements strengthened with externally bonded novel materials,* 3rd International Conference on Building Materials and Construction, ICBMC, Nha Trang, 2/2018.

Conference Presentations

Christos G. Papakonstantinou, Ronald J. Garon and Perumalsamy N. Balaguru. "Inorganic Carbon Composite for Strengthening Plain Concrete Beams", ACI Conference, April 21-24, 2002, Detroit, MI.

Christos G. Papakonstantinou, Perumalsamy N. Balaguru and Michael F. Petrou. "Analysis of Reinforced Concrete Beams Strengthened with Composites Subjected to Fatigue Loading". ACI Conference, April 21-24, 2002, Detroit, MI.

Christos G. Papakonstantinou, Perumalsamy N. Balaguru and Richard E. Lyon. "Hybrid Composite Panels with Fireproof Lightweight Core and Carbon Fiber Skin". SAMPE International Symposium, May 2002, Long Beach, CA.

C.G. Papakonstantinou and P.N. Balaguru, "High Temperature Lightweight Polysialate Syntactic Foams", 10th International Conference on Composites /Nano Engineering, July 2003, New Orleans, LA

C.G. Papakonstantinou and P.N. Balaguru, "Effect of Microsphere Size on the Properties of a Geopolymer Syntactic Foam". 2005 International SAMPE Symposium, May 2005, Long Beach, CA.

C.G. Papakonstantinou and L. Tsang, "An early investigation of High modulus Carbon Fiber/Titanium Laminates". 2005 International SAMPE Symposium, May 2005, Long Beach, CA.

C.G.Papakonstantinou, "Use of geopolymer matrix for high temperature resistant hybrid laminates and sandwich panels." International Workshop on Geopolymers and Geopolymer Concrete GCC 2005, Perth, Australia, September 2005.

C.G. Papakonstantinou, "Protective Coatings with Nano-Constituent Materials", 2nd International Symposium on Nanotechnology in Construction, Bilbao, Spain, November 2005.

C.G. Papakonstantinou and P.N. Balaguru, "Geopolymer Protective Coatings for Concrete ". Proceedings of the 2007 International SAMPE Symposium, Baltimore, MD, v 52, 2007.

Technical Reports

M.F. Petrou, K.A. Harries, and **C. Papakonstantinou**, "Bridge Rehabilitation Using Fiber Reinforced (FRP) Composites", University of South Carolina, Department of Civil and Environmental Engineering Report (final report for SCDOT/FHWA) No. ST 99-01, 74 pp., March 1999.

Michael F. Petrou, and **Christos G. Papakonstantinou**. "Concrete Beams Strengthened with Fiber Reinforced Composite Overlays under Static and Fatigue Testing", April 2000, Vol. 1, Report on "Development and Testing of Fiber Composite Overlays", SCUREF/WSRC/DOE, 105 pp.

Michael F. Petrou, Victor Giurgiutiu, Dorothy Laub, Shannon Whitley, Jed Lyons and **Christos G. Papakonstantinou**. "Fracture Mechanics Testing of the Bond between Composite Overlays and Concrete Substrate", April 2000, Vol. 2, Report on "Development and Testing of Fiber Composite Overlays" submitted to DoE.

Professional Registration

Professional Engineer in Greece after successful examinations

Awards

1999 University of South Carolina, Columbia, SC

The Dean's award for Distinguished Graduate Endeavors.

2003 University of Massachusetts, Dartmouth, MA

Innovative Teaching Methods for Freshman Success

Research Funding

Dr. Papakonstantinou has received the following research grants:

Title	Role	Agency
Rehabilitation Of Reinforced Concrete Elements Using Lightweight Fireproof Composites	P.I.	The Chancellor's Research Fund / Umass Healey Endowment
Acquisition of Instrumentation for Material Characterization	P.I. (Principal Investigator)	NSF (National Science Foundation)
Investigation of Material Properties of Portland Cement Concrete Combined with Recycled Asphalt Pavement (RAP)	P.I.	UMassD COE
Secure Sensor Networks Application to	Co P.I.	UMassD COE

Safety and Maintenance of Railways		
Hybrid Titanium/High Carbon Fiber Composite Laminates	P.I.	NSF (National Science Foundation)
Berkley Bridge Investigation & Community Needs Evaluation	Co P.I.	Chancellor's Publice Service Fund/Umass Public Service Endowment Grants
Utilization Of Recycled Rubber In Concrete Mixtures	P.I.	The Chancellor's Research Fund / Umass Healey Endowment

Memberships – Activities

Member: 2000-present American Concrete Institute (ACI)
2000-present American Society of Civil Engineers (ASCE)
2003-present Transportation Research Board (TRB)
2001-present Society for the Advancement of Material and Process Engineering
1995-present Technical Chamber of Greece (TEE)
1995-present Greek Society of Civil Engineers (GSCE)
1997-1998 Voted member of the GSCE Board
1990-1995 Greek Society of Students in Civil Engineering (GSSCE)
1990-1995 Voted member of the Board of the GSSCE

Reviewer: Materials Research Bulletin
ASCE Journal of Composites for Construction
ASCE Journal of Materials
SAMPE International Symposium
10th ICCE Conference

2003- present UMass Dartmouth ASCE Student Chapter Advisor