

CURRICULUM VITAE

DIONYSIOS A. BOURNAS

Ph.D. in Civil Engineering
Post-doctoral Researcher
European Laboratory for Structural Assessment (ELSA),
Joint Research Centre, European Commission
21027, Ispra, Italy

Born in Athens, Greece, 1980.

EDUCATION

- 2004-2008 University of Patras, Ph.D. in Civil Engineering.
- 1999-2004 University of Patras, Diploma in Civil Engineering (5 year course).
Graduated among the first 5% of the class.

AREAS OF SPECIALIZATION

Integrated experimental and analytical research

- Reinforced Concrete
- Earthquake Engineering
- Advanced Composites (FRP, textile-based) in Construction
- Repair, Strengthening and Seismic Retrofitting of Existing Infrastructure
- Seismic Design of Precast Structures

ACADEMIC & PROFESSIONAL EXPERIENCE

- July 2010 - present Researcher, European Laboratory for Structural Assessment (ELSA), Joint Research Centre-European Commission, Ispra, Italy.
- June 2009 – June 2010 Researcher, European Centre for Training & Research in Earthquake Engineering (EUCENTRE), University of Pavia, Italy.
- Oct. 2009 - present Supervising Professor of Graduate Students (under contract), Hellenic Open University, Patras, Greece.
- Oct. 2008 – May 2009 Research Associate, University of Patras, Department of Civil Engineering, Structural Materials Laboratory.

2006 - May/2009	Lecturer (under contract) at the Department of Infrastructure Engineering, Technological Educational Institute of Patras. Instructor of the Laboratory Courses: (1) Technology of Materials and (2) Rock Mechanics-Tunneling.
2007- 2009	Teaching Assistant at the graduate course “Advanced Materials and Seismic Retrofit Technologies”, Erasmus Mundus Masters in Earthquake Engineering & Engineering Seismology (MEEES).
2004- Oct. 2008	Research Assistant, University of Patras, Department of Civil Engineering, Structural Materials Laboratory.
2004- 2008	Teaching Assistant (course: Mechanics of Materials I & II, Structural Materials), University of Patras, Department of Civil Engineering.
2005- present	License to practice Civil Engineering in Greece.
Summers 2003 and 2003	Public power corporation S.A., Infrastructure Maintenance Division, Practical training for students of Polytechnic Schools.

ANALYTIC TEACHING EXPERIENCE

University of Patras -Teaching Assistant

<i>Period</i>	<i>Course</i>
2004-2008, spring semester	Structural Materials (undergraduate)
2004-2008, fall semester	Mechanics of Materials I (undergraduate)
2004-2008, spring semester	Mechanics of Materials II (undergraduate)
2007-06/2009, fall semester	Advanced Materials and Seismic Retrofit Technologies (graduate)

Technological Educational Institute of Patras-Instructor

<i>Period</i>	<i>Course</i>
2005-2006, spring semester	Technology of Structural Materials
2006-06/2009, fall and spring semesters	Rock Mechanics-Tunneling
2007-06/2009, fall and spring semesters	Technology of Materials

Hellenic Open University-Research Supervision of Graduate Students (as supervising professor)

1. Dimellis, G. “Design of Concrete Flexural Members Strengthened in Shear with Fiber-Reinforced Polymers”, completed.
2. Koutsofios, E. “Strength and Deformation Capacity of Reinforced Concrete Members Strengthened in Flexure with Fiber-Reinforced Polymers”, completed.

3. Papadopoulos, I. “Seismic performance assessment and strengthening of asymmetric in plan reinforced concrete structures”, completed.
4. Avramidis, D. “Seismic assessment and strengthening of a Public Building according to KANEPE provisions”, completed.

MEMBER

- American Concrete Institute (ACI)
- fédération internationale du béton (*fib*)
- International Union of Testing and Research Laboratories for Materials and Structures (RILEM)
- Greek Society of Civil Engineers (GSCE)
- Technical Chamber of Greece (TEE-TCG)

AWARDS

- One-year post-doctoral scholarship funded by the University of Pavia (after selection).
- Silver Mirko Ros Medal for Research on FRP of the EMPA, the Swiss Federal Laboratories for Materials Testing and Research, for the best poster presentation at the 2nd European Young Researchers’ Conference on FRP Reinforcement in Construction.
- Four-year doctorate scholarship: 2 years was funded from European Union through the research program OPERHA and 2 years was funded from Greek General Secretariat for Research and Technology through the research program ARISTION.
- Academic Performance Award in the Department of Civil Engineering, University of Patras, Greece, 2003. Granted from the Technical Chamber of Greece (TEE)-Grade: 9.61/10, Ranking: 5th /1061.

RESEARCH EXPERIENCE (research projects)

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| 07/2010-present | Participation in the project SAFECAST. The SAFECAST is a collaborative research project funded by the European Commission, under FP 7 (Grant agreement number: 218417) and deals with the seismic behaviour of precast pre-stressed structures, with specific reference to connections, deformability and interaction between precast and cast-in-situ elements. In particular, adequate, reliable and verified numerical tools to be used in design will be developed, and new criteria for the design of precast structures in seismic regions will be codified and proposed. Project coordinator: Dr. A. Colombo. |
| 06/2009 -07/2010 | Participation in the project EMME2, under the consortium EMMEDUE-Advanced Building System. Evaluation of the seismic |

behaviour of light prefabricated (modular) innovative panel structures. Technical support for the obtainment of the European Technical Approval (ETA) through a large experimental campaign with seismic tests on members, connections and a full scale structure, funded by the consortium EMMEDUE. Project coordinator: Prof. A. Pavese.

- 06/2009-present Participation in the project "Seismic risk assessment and development of retrofit techniques for existing bridges", under the consortium RELUIS (The Laboratories University Network of seismic engineering). Pseudo-static cycling tests of large-scale rectangular hollow section bridge piers aiming to the evaluation of the seismic behaviour and to the development of FRP retrofit techniques, funded by the Italian Civil Protection Department. Project coordinator: Prof. A. Pavese.
- 10/2008-05/2009 Participation in the project I-SSB (Intelligent Safe and Secure Buildings): The I-SSB is a collaborative research project partly funded by the European Commission, under the 6th Framework Programme - Priority III - NMP4. Twenty two partners-industry-led-from 11 countries are collaborating to develop an intelligent high-tech house prototype; that can resist earthquakes by 'self-healing' cracks in its own walls and monitoring vibrations through sensors.
- 2006- 2008 Participation in the STREP (Specific Targeted Research Project - Protection and Conservation of Cultural Heritage FP6-2003-SSP3-513718) project OPERHA: Open and fully compatible next generation of strengthening system for the rehabilitation of Mediterranean building heritage, funded by the European Union. Project coordinator: José Tomás San José Lombera (Fundación Labein).
- 2005-2008 Participation in the project EN-CORE: This Marie-Curie Research Training Network aims to address current scientific challenges in the field of composite reinforcement (internally placed or externally bonded) for reinforced concrete and masonry structures, to develop standard tests and to bridge the gap between academia and industry so as to accelerate the transfer of knowledge and adoption of FRP in construction», funded by the European Union. Project coordinator: Prof. T.C. Triantafillou.
- 2004- 2007 Participation in the project ARISTION: Assessment of Seismic Vulnerability for Existing Buildings and Development of Advanced Materials/Strengthening Techniques, funded by the Hellenic General Secretariat for Research and Technology. Project coordinator: Prof. T.C. Triantafillou.
- 2004- 2007 Participation in various projects involving toughness tests on fibre-reinforced concrete specimens in the framework of specialized services of the Structural Materials Laboratory offered to private enterprises and public organizations.

INTERNATIONAL JOURNAL REFEREE

Journal of Composites for Construction (ASCE)

PUBLICATIONS

A. Theses

- A1. Bournas D. A., (2008) "Strengthening and Seismic Retrofitting of RC Columns with Advanced Materials: Textile-Reinforced Mortar, Near Surface Mounted FRP or Stainless Steel Reinforcement", (in Greek), Dissertation presented to the Department of Civil Engineering in partial fulfillment of the requirements of the degree of Doctor of Philosophy, 2008, 315p.

B. Papers in Refereed Journals

- B1. Bournas, D.A., Lontou, P.V., Papanicolaou, C.G., and Triantafillou, T.C., (2007) "Textile-Reinforced Mortar (TRM) versus FRP Confinement in Reinforced Concrete Columns", *ACI Structural Journal*, 104(6), 740-748.
- B2. Bournas, D.A., and Triantafillou, T.C., (2009), "Flexural Strengthening of RC Columns with NSM FRP or Stainless Steel", *ACI Structural Journal*, 106(4), 495-505.
- B3. Bournas, D.A., Triantafillou, T.C., Zygouris, K., and Stavropoulos, F., (2009), "Textile-Reinforced Mortar (TRM) Versus FRP Jacketing in Seismic Retrofitting of RC Columns with Continuous or Lap-Spliced Deformed Bars", *ASCE Journal of Composites for Construction*, 13(5), 360-371.
- B4. Bournas, D.A., and Triantafillou, T.C., (2010), "Bond Strength of Lap Spliced Bars in Concrete Confined with Composite Materials", *ASCE Journal of Composites for Construction*, accepted 18 March 2010; posted ahead of print 6 April 2010, doi:10.1061/(ASCE)CC.1943-5614.0000078.
- B5. Bournas, D.A., and Triantafillou, T.C., (2010), "Bar Buckling in RC Columns Confined with Composite Materials", *ASCE Journal of Composites for Construction*, accepted.
- B6. Bournas, D.A., and Pavese, A., (2010), "Seismic Performance of Innovative Prefabricated Concrete Structural Walls", in preparation (close to finishing).
- B7. Bournas, D.A., and Triantafillou, T.C., (2010), "Biaxial Bending Analysis and Design of RC Columns Strengthened with Externally Bonded and/or Confinement Reinforcement", *ACI Structural Journal*, in preparation (close to finishing).
- B8. Bournas, D.A., Torrisi G., and Pavese, A., (2010), "A Practical Design Model for Shear Dominated RC Members", in preparation.

C. Papers in Non-Refereed Journals

- C1. Bournas, D.A., "Buckling of Longitudinal Reinforcing Bars-PartA", (in Greek), *Bulleting of Greek Society of Civil Engineers (GSCE)*, No 329, July-August 2005, pp 18-21.
- C2. Bournas, D.A., "Buckling of Longitudinal Reinforcing Bars-PartB", (in Greek), *Bulleting of Greek Society of Civil Engineers (GSCE)*, No 330, September-October 2005, pp 23-28.

D. Papers in Conference Proceedings (refereed)

- D1. Bournas, D.A., and Triantafillou, T.C., (2011), "Investigation of Bar Buckling in Columns Confined with Composite Material Jackets", *Proc. of the 10th International Conference on FRP for reinforced concrete structures (FRPRCS-10)*, Tampa, Florida, April 2-4, accepted.
- D2. Bournas, D. A., and Pavese, A., (2010), "Experimental Behavior of Prefabricated Concrete Walls Subjected to Seismic Loading", *14th World Conference on Earthquake Engineering*, Ohrid, FYROM, 30th Aug. - 3rd Sep.
- D3. Bournas, D. A., Pavese, A., and Peloso S., (2010), "Seismic Behavior of Prefabricated Concrete Sandwich Panels", *Proc. of the 4th International Conference on Structural Engineering (SEMC 2010)*, Cape Town, South Africa, Sept. 6-8.
- D4. Bournas, D.A., and Triantafillou, T.C., (2010), "Effect of FRP and TRM Confinement on Bond Strength Between Lap-Spliced Bars and Concrete", *The 3rd International fib Congress*, Washington, USA, May 29- June 2, paper ID 417.
- D5. Bournas, D. A., and Triantafillou, T. C., (2009), "Strengthening of RC Columns Subjected to Uniaxial Flexure with Near Surface Mounted Reinforcement", *16th Greek National Conference on Concrete*, Pafos, Cyprus, 21-23 Oct.
- D6. Bournas, D. A., and Triantafillou, T. C., (2009), "Confinement of Old-Type RC Columns with Limited Deformation Capacity through TRM and FRP Jackets", *16th Greek National Conference on Concrete*, Pafos, Cyprus, 21-23.
- D7. Bournas, D.A., and Triantafillou, T.C., (2009), "Innovative seismic retrofitting of RC columns using advanced composites", *ACES Workshop: Performance-Based Earthquake Engineering*, Corfu, Greece, July 4-7, **(after invitation)**.
- D8. Bournas, D.A., Triantafillou, T.C., and Matthys, S., (2009), "Textile-Reinforced Mortar (TRM) versus FRP Jacketing for RC Columns with Lap-Spliced or Continuous Bars", *Proc. of the 9th International Conference on FRP for reinforced concrete structures (FRPRCS-9)*, Sydney, Australia, July 13-15.
- D9. Bournas, D.A., Triantafillou, T.C., and Papanicolaou, C.G., (2009), "Retrofit of Seismically Deficient RC Columns with Textile-Reinforced Mortar (TRM) Jackets", *4th Colloquium on Textile Reinforced Structures (CTRS4)*, Dresden, Germany, June 3-5, (available on line), **(after invitation)**.

- D10. Bournas, D.A., and Triantafillou, T.C., "New Method for Seismic Retrofitting of RC columns in Flexure with NSM FRP or Stainless Steel Reinforcement", *Proc. of the 3rd Greek National Conference on Earthquake Engineering and Technical Seismology*, Athens, November 5–7, 2008, paper ID 1873.
- D11. Bournas, D.A., Triantafillou, T.C., Zygouris, K., and Stavropoulos, F., (2008), "Seismic Retrofitting of RC Columns through Jacketing: Textile-Reinforced Mortars (TRM) versus Fiber-Reinforced Polymers (FRP)", *Proc. of the 3rd Greek National Conference on Earthquake Engineering and Technical Seismology*, Athens, November 5–7, 2008, paper ID 1874.
- D12. Bournas, D.A., and Triantafillou, T.C., (2008), "Innovative Seismic Retrofitting of Old-type Reinforced Concrete Columns through Jacketing: Textile-Reinforced Mortars (TRM) versus Fiber-Reinforced Polymers (FRP) ", *Proc. of the 14th World Conference on Earthquake Engineering*, Beijing, China, October 12-17, paper ID 05-03-0071.
- D13. Bournas, D.A., and Triantafillou, T.C., (2008), "Flexural Strengthening of RC Columns with Near Surface Mounted FRP or Stainless Steel Reinforcement: Experimental Investigation", *Proc. of the 14th World Conference on Earthquake Engineering*, Beijing, China, October 12-17, paper ID 05-03-0072.
- D14. Bournas, D.A., (2008), "Textile-Reinforced Mortars (TRM) versus Fiber-Reinforced Polymers (FRP) Jacketing for Seismic Retrofitting of Old-type Reinforced Concrete Columns", *Proc. of the 7th fib International PhD Symposium in Civil Engineering*, Stuttgart, Germany, September 10-13, paper ID 15-2.
- D15. T. C. Triantafillou and D. A. Bournas, (2008), "Innovative seismic upgrading of RC columns in flexure with NSM reinforcement and textile-based jacketing", *Proc. of the 4th International Conference on FRP Composites in Civil Engineering (CICE2008)*, Zurich, Switzerland, July 22-24, **keynote** paper ID KN2.
- D16. Bournas, D.A., and Triantafillou, T.C., (2008), "Experimental Investigation of Flexurally Strengthened RC Columns with Near Surface Mounted FRP or Stainless Steel Reinforcement", *Challenges for Civil Construction 2008 - 4th International Conference*, Porto, Portugal, April 16 – 18, paper ID T5-3.
- D17. Bournas, D.A., Lontou, P.V., Papanicolaou, C.G., and Triantafillou, T.C., (2007), "Textile-Reinforced Mortar (TRM) versus FRP Jacketing for Reinforced Concrete Columns", *Proc. of the 8th International Conference on FRP for reinforced concrete structures (FRPRCS-8)*, Patras, Greece, July 16-18, paper ID 17-10.
- D18. C. G. Papanicolaou, T. C. Triantafillou, D. A. Bournas and P. V. Lontou, (2006), "TRC as Strengthening Material of Concrete Structures", *1st International Conference Textile Reinforced Concrete (ICTRC)*, Aachen, September 5-7, pp. 331-340.
- D19. Bournas, D.A., and Triantafillou, T.C., "Textile-Reinforced Mortar (TRM) vs. Fiber Reinforced Polymer (FRP) Jacketing for Reinforced Concrete Columns", (2007), *2nd Young Researchers' Conference on FRP Reinforcement in Construction Dóbendorf*, Switzerland, January 18, (poster presentation).
- D20. Bournas, D.A., Papanicolaou, C.G., and Triantafillou, T.C., (2006), "Textile-Reinforced Mortars (TRM) versus Fibre Reinforced Polymers (FRP) as Strengthening

Materials of Concrete Structures", *En-Core 2nd Symposium*, Limassol, January, (poster presentation).

- D21. Triantafyllou, T. C., Papanicolaou, C. G., Bournas, D. A., and Lontou, P. V., (2006), "Rising Generation of Composite Materials in Inorganic Matrix for Strengthening of RC Structures", *Proc. of the 15th Greek National Conference on Concrete*, Vol. I, Alexandroupolis, Greece, 25-27 Oct., pp. 392-404.

E. Chapters in books, Course/Class Notes

- E1. Chapter 36 of the book "Advances in Performance-Based Earthquake Engineering" with title Innovative Seismic Retrofitting of RC Columns Using Advanced Composites, © *Springer Science + Business Media B.V. 2010, Geotechnical, Geological, and Earthquake Engineering 13*, DOI 10.1007/978-90-481-8746-1_36, Edited by M.N. Fardis.
- E2. Bournas, D. A., (2007), "Technology of Materials", Laboratory Class notes, Technological Educational Institute of Patras, Department of Infrastructure Engineering.
- E3. Bournas, D. A., (2008), "Rock Mechanics-Tunneling", Laboratory Class notes, Technological Educational Institute of Patras, Department of Infrastructure Engineering.

F. Research/Technical Reports

- F1. Triantafyllou, T.C., Papanicolaou, C.G., Bournas, D.A., Lontou, P.V., Zisimopoulos, P., Laouderkis, A., Karlos, K., Papathanasiou, M., Spathis, L., Bousias, S. N., and Fardis, M. N., (2006), "Assessment of Seismic Vulnerability for Existing Buildings and Development of Advanced Materials/Strengthening Techniques", ΔΠ/6, 4.5.1- Built Environment and Management of Seismic Risk, Research Report to the Greek General Secretariat for Research and Technology.
- F2. T. C. Triantafyllou, C. G. Papanicolaou, and D. A. Bournas, "Experimental Investigation of Toughness Energy Indices of Steel Fiber-Reinforced Concrete", Research Report to AKTOP-TEB consortium, September 2006.
- F3. T. C. Triantafyllou, C. G. Papanicolaou, and D. A. Bournas, "Experimental Investigation of Toughness Characteristics of Steel Fiber-Reinforced Concrete", Research Report to PANTECHNIKI-TEB consortium, October 2006.
- F4. T. C. Triantafyllou, C. Antonopoulos T. Grammenou, and D. A. Bournas, "In situ and Laboratory Tests of the 12th Elementary School of Patras", Research Report to Prefecture of Achaia, May 2006.

LANGUAGES

Greek (Native), English (Very Good), Italian (Good).

SKILLS

Laboratory experience: Six years of experience in experimental techniques, e.g.: definition of the experimental test setup (with emphasis on seismic conditions), setting up new laboratory facilities.

Analytic Experience: Development of software for the design of strengthening applications on columns subjected to uniaxial and biaxial bending.

Experience in development of National and European Research Proposals.

Programming languages/ Structural engineering software: MATLAB, VISUAL BASIC 6, Mathematica / PERFORM 3D, SAP2000, ETABS.