# Konstantinos Tzaros

Dr. Civil Engineer

## Curriculum Vitae


**Nationality:** Hellenic
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## Education

**3/2011** — **Doctoral Degree in Structural Civil Engineering:**
*«The unilateral contact buckling problem of geometrically perfect and imperfect beams (in English)»*
University of Thessaly,
Faculty of Engineering,
Department of Civil Engineering,
Supervisor: E.S. Mistakidis, Dr. Civil Engineer, Professor
Grade: 10.00 , «Excellent»

**2007-2009** — **Master of Science Degree in «Applied Mechanics, Systems Modelling and Simulation»**
University of Thessaly,
Faculty of Engineering,
Department of Civil Engineering
Grade: 8.70 «Very Good»

Master Thesis:
*«Numerical finite element simulation of four-point bending tests in composite slabs with profiled steel sheeting based on Nonconvex-Nonsmooth optimization (in Greek)»*
Supervisor: E.S. Mistakidis, Dr. Civil Engineer, Professor
Grade: 10.00 , «Excellent»

**9/1999-11/2005** — **Degree in Civil Engineering,**
University of Thessaly,
Faculty of Engineering,
Department of Civil Engineering
Grade: 7.50, «Very Good»

Diploma Thesis:
*«Design of composite slabs with trapezoidal steel sheet profile according to Eurocode 4 and Eurocode 3-Part 1.3. Programming in Fortran 90/95 (in Greek)»*
Supervisor: E.S. Mistakidis, Dr. Civil Engineer, Professor
Grade: 10.00 , «Excellent»

## Publications in International Scientific Journals (with reviewers)

**2014** **K.A. Tzaros,** E.S. Mistakidis
*«The constrained buckling problem of geometrically imperfect beams: A mathematical approach for the determination of the critical instability points», Meccanica DOI 10.1007/s11012-014-0087-7, Springer.*

**2011** **K.A. Tzaros,** E.S. Mistakidis
*«The unilateral contact buckling problem of continuous beams in the presence of initial geometric imperfections: An analytical approach based on the theory of elastic stability», International Journal of Non-linear Mechanics, Vol 46, pp. 1265-1274, 2011»*

**2009** **K.A. Tzaros,** E.S. Mistakidis, P.C. Perdikaris
*«A numerical model based on nonconvex-nonsmooth optimization for the simulation of the bending tests on composite slabs with profiled steel sheeting», Engineering Structures, Vol 32, Issue 3, pp. 843-853, 2010»*

## Publications in International Conference Proceedings (with reviewers)

**2016** E. T. Chatzillari and **K.A. Tzaros,** "*Influence of the friction coefficient in the rocking response of rigid multi-block columns via nonlinear finite element analysis.*" Proceedings of the 11th HSTAM International Congress on Mechanics, 27-30 May, Athens, Greece, 2016

**2013** **K.A. Tzaros,** E.S. Mistakidis, "*Evaluation of a mathematical method for the calculation of the critical instability load in geometrically imperfect beams supported by unilateral supports*." Proceedings of the 10th HSTAM International Congress on Mechanics, 25-27 May, Chania, Greece, 2013

**2008** **K.A. Tzaros,** E.S. Mistakidis, P.C. Perdiakaris, "*Nonlinear analysis of thin walled cold formed steel platforms"*, 5th European Conference on Steel and Composite Structures (EUROSTEEL), Graz

**2008** **K.A. Tzaros,** E.S. Mistakidis, "*Numerical buckling behaviour of thin walled cold formed steel platforms subjected to bending"*. In: M. Papadrakakis and B.H.V. Topping, (eds.) Proceedings of the Ninth International Conference on Computational Structures Technology, Athens

**2008** Th. Papatheocharis**,** P.C. Perdikaris, **K.A. Tzaros, "***Experimental study of the response of fiber-reinforced beams subjected to static monotonic and cyclic loading"*. 3rd Hellenic Conference on Earthquake Engineering and Technical Seismology ,5-7 November, 2008, Athens (in Greek)

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| **2007** | E.S. Mistakidis, P.C. Perdikaris, **K.A. Tzaros**, "*A novel approach for the consideration of the partial connection between concrete and steel in composite slabs***"** 2nd International Conference on Nonsmooth\Nonconvex Mechanics with Applications in Engineering (in Memoriam of Professor P.D. Panagiotopoulos), Thessaloniki |

## Working experience (A) \ Participation in structural research programs

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| **12/2010-04/2011** | **Experimental and numerical investigation for the calculation of the real strength of solar system bases made of non convential steel cross sections. (Part 2)**<br><br>Funded by: Ptolemeo Group<br>Supervisor: A. Michailidis, Dr. Mechanical Engineer, Professor |
| **05/2010-12/2010** | **Experimental and numerical investigation for the calculation of the real strength of solar system bases made of non convential steel cross sections. (Part 1)**<br><br>Funded by: EXEL Group<br>Supervisor: A. Michailidis, Dr. Mechanical Engineer, Professor |
| **07/2003-03/2007** | **Development, pilot production and trial application of new generation composite materials based upon cement for the improvement of the seismic structural behaviour.**<br><br>Funded by: General Secretariat of Research and Technology<br>Supervisor: E.S. Mistakidis, Dr. Civil Engineer, Professor |
| **01/2006-12/2006** | **Experimental and Numerical Computation of the Ultimate Loads of the Buckling Behaviour of Cold Formed Steel Platforms**<br><br>Funded by: Elastron, Steel Service Center<br>Supervisor: E.S. Mistakidis, Dr. Civil Engineer, Professor |
| **01/2005-12/2005** | **Experimental and Numerical Computation of the Ultimate Loads of Composite Slabs made of Profiled Steel Sheeting Subjected to Bending.**<br><br>Funded by: Elastron, Steel Service Center<br>Supervisor: E.S. Mistakidis, Dr. Civil Engineer, Professor |

## Working experience (B) \ Experience on structural design projects

My recent working experience involved the design of steel, concrete and masonry structures. In detail, the projects dealt with the static and dynamic analysis (in SAP 2000) and design of:

- Detailed design of a steel structure of non-conventional cross-sections (Cubus softaware) used for the support of solar systems (For Exel Group- Thessaloniki, Greece).
- Design of a steel silo for Cao storage. (Cao Hellas, Thessaloniki) Nonlinear static and dynamic analysis. (in SAP 2000)

- Fully detailed design of 2-storey steel buildings with steel frames and composite floor in the Centre of Volos, Greece (Cubus softaware for the static analysis, SteelCon software for the design of the steel connections.)
- Rehabilitation and design of a concrete coal powder silos (Lafarge concrete industry). Nonlinear static and dynamic analysis. (in SAP 2000)
- An old unreinforced masonry monastery in Volos (Magnisia, Greece) (in SAP 2000)
- An old 2-storey unreinforced masonry building in Makrinitsa (Pilion, Greece). (in SAP 2000).

## Experience in finite element simulation

During all those years in the University of Thessaly as a PhD student and research associate, I have obtained good knowledge and experience:

- In the finite element simulation of highly nonlinear mechanical problems (geometric nonlinearity, material nonlinearity, contact phenomena) in the area of structural stability and steel structures.
- In the interpretation of experimental data and results.
- In the interpretation of numerical result and in comparison of them with the corresponding experimental ones.
- In writing technical documents and papers concerning the behaviour of experimentally and numerically (through the Finite Element Method) tested structural components or members.

## Teaching Experience-Supervision of Diploma Thesis

- 2014-today: Autonomous teaching of the course "**Dynamics of structures I**", Department of Civil Engineering, University of Thessaly.
- 2011-2013: Autonomous teaching of the course "**Analysis of plates and discs, classical and numerical methods**", Department of Civil Engineering, University of Thessaly.
- 2009-2011: Supportive teaching of the course "**Structural analysis I**", Department of Civil Engineering, University of Thessaly.
- 2009-2011: Supportive teaching of the course "**Structural analysis II**", Department of Civil Engineering, University of Thessaly.

<u>Supervision and co-supervision of Diploma Theses (2014-today)</u>

- "*Numerical investigation of the buckling behavior of steel beams with non-conventional thin walled cross-sections*", submitted by the student Voulgaris Dimitrios (supervisor).
- "*Influence of the friction coefficient in the rocking response of rigid-multi block columns via nonlinear finite element analysis*", submitted by the student Eirinaios Chatzillari (supervisor).
- "*Numerical study of the thermal buckling response of tanks subjected to non-uniform heating through nonlinear finite element analysis*", submitted by the student Maria-Alexandra Kefaki, (co-supervisor)

## Foreign Language Knowledge

English :Very Good (spoken and writing)

- **First Certificate in English, University of Cambridge ,1997**
- **TOEIC (Total score 845/999), 2014**

## Computer and software Knowledge

- ✓ Windows, Office
- ✓ Architectural Design Software**: AutoCad 2011**
- ✓ Commercial Structural Analysis Programs with FEM**: Cubus, SAP 2000** (very good)
- ✓ Advanced Finite Element Simulation Software: **M.C.S. Marc Mentat 2011** (very good)
- ✓ Mathematic Software: **Wolfram Mathematica v.8**
- ✓ Programming knowledge: **Fortran 90/95**