

## Curriculum Vitae

### I.1. PERSONAL DETAILS

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Name Theodoros  
Surname Karakasidis  
Current Position Professor of Applied Physics  
Work Address Department of Physics, School of Sciences  
University of Thessaly, Lamia, Greece (<https://www.phys.uth.gr/en/>)  
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### I.2. EDUCATION

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- *BSc in Physics*, Aristotle University of Thessaloniki, Greece (1989) (GPA 9.51/10).
- *MSc in Materials Science*, University Pierre et Marie Curie (Paris 6), Paris, France (1991).
- *PhD in Physics*, University Pierre et Marie Curie (Paris 6), Paris, France (1995).
- *Master in Education*, Greek Open University, Greece (2009).

### I.3. ACADEMIC HONOURS & AWARDS

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- Visiting Researcher at the Laboratoire d'Etude des Transferts en Hydrologie et Environnement, Université Joseph Fourier Grenoble, France (17 june-17 july 2012)
- Visiting Professor, Physics Dept., University of Cyprus, Nicosia (Sep 2011-Dec 2011)
- Postdoctoral grant by the National Scholarship Foundation, Greece (1-Jan-2001 to 31-Dec-2002) “Simulation of liquids using Molecular Dynamics Techniques”
- Onassis Foundation Scholarship for Graduate Studies (1991).
- Highest Grade Point Average, Dept. of Physics, University of Thessaloniki (1989).
- Scholarship for Excellence in Academic Performance, Dept. of Physics, University of Thessaloniki, National Scholarship Foundation, Greece (1985 through 1989).

#### **I.4. RESEARCH INTERESTS**

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- Computational materials science
- Nanomaterials, nanofluidics and nanotechnology
- Parallel computing and computational methods
- System dynamics and non-linear time series computational analysis
- Machine learning, data analytics
- Teaching Science and Technology with the use of ICT
- Scientific Literacy, Physics Education

#### **I.5. TEACHING EXPERIENCE**

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**1997-present** University of Thessaly.

Sep 1997 – Aug 2005	Adjunct Assistant Professor, School of Engineering, University of Thessaly, Volos, Greece
Sep 2005 – Oct 2009	Lecturer of Applied Physics, Department of Civil Engineering, School of Engineering, University of Thessaly, Volos, Greece
Nov 2009 – Feb 2014	Assistant Professor of Applied Physics, Department of Civil Engineering, School of Engineering, University of Thessaly, Volos, Greece
Feb 2014 – Aug 2018	Associate Professor of Applied Physics, Department of Civil Engineering, School of Engineering, University of Thessaly, Volos, Greece
Sept 2018 – Aug 2020	Professor of Applied Physics, Department of Civil Engineering, School of Engineering, University of Thessaly, Volos, Greece
Sept 2020 – present	Professor of Applied Physics, Department of Physics, School of Sciences, University of Thessaly, Lamia, Greece

#### **Undergraduate courses**

##### **DEPARTMENT OF PHYSICS, University of Thessaly, Volos, Greece**

- **Introduction to Contemporary Physics (winter semester)**

As Faculty member (2020)

- **Electromagnetism I (winter semester)**

As Faculty member (2020 -present)

- **General Physics II (spring semester)**

As Faculty member (2021)

- **Electromagnetism II (spring semester)**

As Faculty member (2021-present)

- **Condensed Matter Physics I (spring semester)**

As Faculty member (2022-present)

**DEPARTMENT OF CIVIL ENGINEERING, University of Thessaly, Volos, Greece**

- **Physics I (winter Semester)**

As Adjunct Lecturer (1997 to 2004), As Faculty member (2005 to 2020)

- **Physics II (spring semester)**

As Adjunct Lecturer (1997 to 2004), As Faculty member (2005 to 2020)

- **Numerical Analysis (winter Semester)**

As faculty member (2012-2020)

- **Academic writing**

As faculty member (2015 to present)

**DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING, University of Thessaly, Volos, Greece**

- **Physics I (winter Semester)**

As Adjunct Lecturer (2000)

- **Physics II (spring semester)**

As Adjunct Lecturer (2000)

**DEPARTMENT OF MECHANICAL ENGINEERING, University of Thessaly, Volos, Greece**

- **Electromagnetism-Optics (2000)**

As Adjunct Lecturer (2000)

**DEPARTMENT OF PHYSICS, University of Cyprus, Nicosia, Cyprus**

- **Physics for Chemists**
- **General Physics III (Waves, Electromagnetic waves, optics, modern physics)**

As Visiting Professor (2011)

**GRADUATE COURSES**

**2005-2011** University of Thessaly: Department of Civil Engineering, University of Thessaly, Volos, Greece

- **System Theory and Simulation (spring semester),**
- **Applied Mathematics (winter semester)**

- **Linear Algebra and Applications.**

**2010-2016** Common Greek-French Master Hydrohazards between University of Thessaly and University Joseph-Fourier Grenoble

- **Teaching at the Risk Course elements of non-linear time-series analysis (In English).**

**2017-present** Interdepartmental Interinstitutional Graduate Program “Econophysics – Financial Forecasting”

-Teaching the courses

- **“Statistical Physics and Thermodynamic approach to Economy”**
- **“Seminar course Research Methodology”**

**2021-present** Graduate Program “Applied Physics” Department of Physics

-Teaching the courses

- **“Computational Materials Science”**
- **“Advanced data analysis”**
- **“Research Methodology I and II”**

#### **I.6. DIPLOMA THESIS SUPERVISING (20)**

#### **I.7. M.SC THESES SUPERVISION (25)**

#### **I.8. PH. D. SUPERVISION AND COMMITTEES**

##### **Ongoing PhD theses**

- Tsoutsoumanos E.” Study of the phenomenological models of induced luminosity in the micro-scale and nanoscale dimensions through simulations in a programming environment, Department of Physics, University of Thessaly
- Papastamatiou K. “Symbolic regression and machine learning with applications in Materials Science and Dynamical Systems”, Department of Physics, University of Thessaly.

- Liosis C. «*Modeling of water purification via chemical reactions and electromagnetic driving of particles*». Dept. of Civil Engineering, University of Thessaly
- Stergiou K. «*Analysis and forecasting of energy resources availability and pricing with advanced time series analysis and machine learning methods*» Dept. of Civil Engineering, University of Thessaly

#### Supervisor of PhDs successfully defended

- Myrovali G., «C Methodological framework for the recognition and identification of the Dynamics of Road Urban Traffic», Dept. of Civil Engineering, University of Thessaly, July 2020
- Karvelas E. «Magnetic driving of particles in Newtonian and non-Newtonian fluids», *successfully defended, February 2019.*
- Fragkou A. «Detection and characterization of observations correlations of Dynamic Systems with advanced time series analysis methods», *successfully defended, January 2017.*
- Charakopoulos A. «Analysis and identification of spatiotemporal phenomena with the use of advanced Time series analysis methods» *successfully defended, July 2015.*

#### Member of the Consulting Committee of Phd candidates that have been successfully defended

- Tantos C., Dept. of Mechanical Engineering, University of Thessaly, Greece (2016) «Effect of rotational and vibrational degrees of freedom in polyatomic gas heat transfer, flow and adsorption processes far from equilibrium»
- Lemonakis P., Dept. of Civil Engineering, University of Thessaly, Greece (2012) «Contributing to the investigation of motorcycle drivers' behavior in curved road sections»
- Ioannou A., Dept. of Civil Engineering, University of Thessaly, Greece (2022) Thesis Title: «Methodologies for modelling the water-energy-food nexus and other environmental systems for resilience and sustainability»
- Leousidi A., Dept. of Civil Engineering, University of Thessaly, Greece (2022), Thesis Title: «Experimental and computational field determination of fluid flow velocities (water) in an open pipeline, due to temperature changes».

#### Member of the Consulting Committee of ongoing Phd candidates

- Tzinava M., Dept Department of Computer Science and Biomedical Informatics, University of Thessaly” Computational methods for simulation, optimization and intelligent quality control of production processes (from 2020)
- Soulikias A. Investigation of the geometric, dimensional and spatio-temporal parameters and the characteristics of the observer in the mathematical expression of the Fundamental Natural Laws, Dept. of Physics, University of Thessaly
- Girgolas A. “Study and Forecast of Economic Indicators with the Use of Non-Linear Dynamics”, Department of Physics, Aristotle University of Thessaloniki, Greece
- Kalogeras D., “Political and Social Culture Strategies in the Teaching of Mathematics”, Department of Electrical and Computer Engineering, University of Peloponnese, Greece.
- Papadopoulos G. “πολυδιάστατη ανάλυση δεδομένων, πολύπλοκα δίκτυα και παγκόσμια οικονομικά συστήματα”, Department of Physics, International Hellenic University, Greece

#### **I.9. PARTICIPATION IN PHD EXAMINATION COMMITTEES**

- Kasiteropoulou D. «Methods of Mesoscopic and Macroscopic Simulation of Fluid Motion” *successfully defended, 2012*. Dept. of Civil Engineering, University of Thessaly
- Sofos F. «Numerical Simulation and experimental study of flows in micro and nano-channels” *successfully defended, 2012*. Dept. of Civil Engineering, University of Thessaly
- Pantazis S. «Simulation of transport phenomena in conditions far from thermodynamic equilibrium via kinetic theory with applications in vacuum technology and MEMS” (2011) Dept. of Mechanical Engineering, University of Thessaly.
- Galanis A. «Contributing to the development of a methodology for monitoring and evaluation of road safety and pedestrian mobility in the urban environment» (2011) Dept. of Civil Engineering, University of Thessaly.
- Lemonakis P.. Dept. of Civil Engineering, University of Thessaly, « Contributing to the investigation of motorcycle drivers' behavior in curved road sections » (2012)
- Lycharopoulos I. (2014) «Computational solution of kinetic equation in time varying transport phenomena far from equilibrium» Dept. of Mechanical Engineering, University of Thessaly
- Tantos C. «Effect of rotational and vibrational degrees of freedom in polyatomic gas heat transfer, flow and adsorption processes far from equilibrium” Dept. of Mechanical Engineering, University of Thessaly (2016)
- Gkana A. «Complex Population Dynamics and Economic Repercussions: Predator-Prey Interactions, Infectious Disease Transmission and Solar Magnetic Activity» Department of Economics, University of Thessaly (2016)

- Dimitriadis P., “Hurst-Kolmogorov dynamics in hydroclimatic processes and in the microscale of turbulence”, School of Civil Engineering, National Technical University of Athens (2017)
- Kaloudis K. “Bayesian methods and estimation of nonlinear dynamical system”, Dept. of Mathematics, University of the Aegean, Greece (2019)

#### Reviewer for the PhD thesis

- Iacobello G. “Spatio-temporal analysis of wall-bounded turbulence. A multidisciplinary perspective via complex networks “, Doctoral School of Politecnico di Torino, Italy (also served as external reviewer) (2020)

### **I.10. RESEARCH POSITIONS AND EXPERIENCE**

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•**30-Sep-88 to 30-Sep-89** Division of Solid State, Physics Department, University of Thessaloniki, Diploma Thesis “Random Walks on perfect and disordered lattices”. Part of the research program “Dynamics of diffusion in disordered solids” funded by VW-Stiftung.

- Development of Monte Carlo simulations in Fortran to study percolation problems.

•**1-Apr-90 to 30-May-92** Section des Recherches de Metallurgie Physique, Nuclear Research Center of Saclay, France.

- Worked on numerical simulation of grain boundaries in metals, dynamical properties of Calcium Fluoride and diffusion properties of oxides.
- Simulations performed on vector and parallel machines of IDRIS (CRAY and IBM Risk clusters) using in-house and personally developed Fortran Codes.

•**1-Jun-92 to 31-Oct-95** Laboratoire de Solides Irradies, Ecole Polytechnique, France, Grain Boundaries, Researcher.

- Molecular Dynamics simulations on vector and parallel machines (CRAY and IBM Risk clusters) using in house and personally developed Fortran Codes.

•**1-Apr-96 to 8-Apr-97** Military Service (obligatory in Greece).

•**1-May-99 to 31-Dec-02** Participation in the European Program COST-F2 «Electrochemical Sensors for flow measurements”.

- Represented the department of Civil Engineering of University of Thessaly in Steering Committee meetings as well as participated in visits for investigation of possible collaborations with experimental teams in France.

•**1-Jul-00 to 30-Jun-01** Senior Researcher in the research project “Development of a parallel processing environment and testing of parallel algorithms”, funded by the Research Committee of University of Thessaly.

#### Nature of Duties:

- Participation in the writing and realization of the scientific proposal.

- Writing of administrative progress reports as well as technical reports.
- Production of scientific results and preparation of scientific papers for international journals and conferences.
- Design and build a cluster of PCs running Linux and MPI.
- Adapt molecular dynamics code for parallel processing.

• **1-Jan-02 to 31-Dec-02** School of Engineering, Hydrodynamics Laboratory. Postdoctoral Research grant by the National Scholarship Foundation, Greece. “Simulation of liquids using Molecular Dynamics Technique”.

- Writing and materializing the scientific proposal as well as scientific papers for international journals and conferences.
- Preparation of Technical and administrative/financial reports.

• **1-Mar-04 to 31-Dec-08** senior researcher in the program «Analysis and modeling of chaotic behavior in hydraulic systems: from the microscale to macroscale”, funded by the Greek Secretariat of Research and Technology.

(Budget 80.000 Euros)

- Participation in the writing and realization of the scientific proposal.
- Writing of technical and reports as well progress and financial reports of the project.
- Preparation of results and writing of scientific papers for international journals and conferences.

• **1-Nov-05 to 31-Aug-08** Senior researcher in the program “Numerical modeling and experimental study of flows in micro and nano-channels” funded by the Greek Ministry of Development, Greek Secretariat of Research and Technology.

(Budget 120.000 Euros)

- Participation in the writing and realization of the scientific proposal.
- Preparation of technical and financial reports as well as scientific papers for international journals and conferences.
- Co-Direction of two PhD students.

• **1-Jul-08 to 31-Aug-08** Senior Researcher in the Project of the Reform of the Undergraduate Curriculum of the Department of Civil Engineering of the University of Thessaly, Volos, Greece.

- Investigation of the parallel use of simulations and experiments in the teaching of physical sciences.

• **1-Jul-07 to 31-Dec-08** Principal Investigator “Atomistic modeling of oxide interfaces”, Funding University of Thessaly, Research Committee.



- Developed molecular simulations for Si/NiO interfaces, running on a local cluster of 16nodes.

•**1-Sep-11 to 31-Dec-11** Senior Researcher, “Atomistic simulation of peptides”, University of Cyprus.

- Perform analysis of biological molecules from simulations results using CHARMM and NAMD codes and in house developed programs.
- More precisely we have initiated a research collaboration, which aims to elucidate by atomistic MD simulations the structure and interactions of complexes between peptides A $\beta$  and IAPP, respectively, implicated in the development of Alzheimer’s disease and type-2 diabetes.

•**March-14 to Sep 15** Senior Researcher, “ARISTEIA Project-Fatigue of Materials Used in Vascular Surgery”, University of Thessaly. (Budget 246.000 €).

- Modeling of flows at nano and microscale with applications in blood flow.

•**2020-2021 Principal Investigator**, Project “Magnetic driving of nanoparticles in human arteries’ networks”. Funded by the Ministry of Education in support of young researchers. Responsible for one post-doc and one doctoral student. (Budget 65.000 €)

**2021-2023 Senior Researcher, Coordinator of Work Package** “Development of physical models for advanced materials and validation through experiments and simulation in a high performance computer environment”, ParICT\_CENG, run by the School of Sciences of University of Thessaly and financed by the Region of Central Greece. (Total budget 1.260.000€, work package budget 145.000 €)

**10/2022-12/2022** Researcher in the project Horizon ARSINOE Climate-resilient regions through systemic solutions and innovations. Action. Analysis of climate data using complex networks

**03/2022-03/2025** Senior Researcher I the project “Multiscale modelling of environmental and free surface flows with particle-based methods (MOVEFREE)”, no. 4584, U.Th. - Brown University, USA, Hellenic Foundation for Research and Innovation

**3-Oct-2023 to 2 Oct-2027: Member of the Managing Committee of the Cost Action CA22123** “European Materials Acceleration Center for Energy”

### **I.11. ADMINISTRATIVE EXPERIENCE**

- Deputy Chairman of the Department of Civil Engineering, School of Engineering, University of Thessaly Volos, Greece (academic years 2016-17, 2017-18)
- Coordinator of the Curriculum Committee of the Department of Civil Engineering, School of Engineering, University of Thessaly Volos, Greece (academic years 2016-17, 2017-18)
- Coordinator of the Committee for Doctoral Studies, Department of Civil Engineering, School of Engineering, University of Thessaly Volos, Greece (2018-19)
- Deputy Chairman Department of Physics University of Thessaly (2019-2020)
- Elected Deputy Chairman Department of Physics University of Thessaly (2021-present)
- Representative of the Department of Physics in the Research Committee of the University of Thessaly
- Representative of the Department of Physics in the Senate of University of Thessaly
- Member of the Central Committee for Quality Assurance of University of Thessaly (June 2018-present)
- Representative of the School of Engineering in the Board of School of Continuous and Professional Learning of the University of Thessaly (2018-2020)
- Director of the Joint Postgraduate Program “Econophysics-Financial Forecasting” co-organized by the Department of Civil Engineering and the Department of Economics of University of Thessaly and The Department of Physics of the International University of Greece (2017-2020)
- Director of the Postgraduate Program “Applied Physics” organized by the Department of Physics of University of Thessaly (2021 –present)
- Lab Director, Condensed Matter Physics Laboratory Department of Physics, University of Thessaly.
- Responsible of the office of Quality Assurance of Education and Research of the Department of Mechanical Engineering of the University of Thessaly, Volos, Greece. (1-Jul-02 to 01-Jul-05)
- Project Manager in a Project co financed by EU and The Greek Ministry of Education (Operational program "Education", co-financed by the European Social Fund (ESF) and the European Regional Development Fund (ERDF) and national resources) concerning the realization of the Graduate Program of the Department of Mechanical Engineering of the University of Thessaly, Volos, Greece (Budget 500.000 Euro) (1-May-1998 to 31-Aug-2001)
- Project Manager in a Project co financed by EU and The Greek Ministry of Education (Operational program “Education”, co-financed by the European Social Fund (ESF) and the European Regional Development Fund (ERDF) and national resources) concerning the realization of the Reform of the undergraduate Program of the Department of Mechanical Engineering of the University of Thessaly, Volos, Greece (Budget 250.000 Euro) (1-May-1998 to 30-Jun-2000)

## **I.12. INTERNATIONAL COLLABORATIONS**

Erasmus collaboration with University of Strathclyde, UK

Erasmus collaboration with NTNU University, Norway

International Erasmus Collaboration with Nazarbayev University, Kazakhstan

Bilateral visit program with the Interdisciplinary Centre for Advanced Materials Simulation (ICAMS), Ruhr-Universität Bochum, Germany.

## **I.13. ARTICLE REVIEWER FOR INTERNATIONAL JOURNALS**

(representative list)

- Physical Review E
- Physics of Fluids
- MRS Communications
- Scientific Reports
- Computers in Biology and Medicine
- Current Applied Physics
- International Journal for Numerical Methods in Fluids
- International Journal of Emerging Technologies in Learning (iJET)
- International Journal of Heat and Mass Transfer
- Journal of Computational and Applied Mathematics
- Journal of Intelligent and Fuzzy Systems
- Journal of Mathematical Imaging and Vision
- Journal of Physics: Condensed Matter
- Materials Science and Engineering B
- Mechanics of Advanced Materials and Structures
- Modelling and Simulation in Materials Science and Engineering
- Molecular Simulation
- Nanotechnology
- Surface Science
- International Journal of Nanomedicine

## **I.14. GUEST EDITOR OF SPECIAL VOLUMES**

- 1) Guest Editor, Desalination and Water Treatment Journal (Taylor and Francis) Special Issue “Managing water from its source, to the final user (and back to the environment) 2016 Volume 57, Issue 25, 2016
- 2) Guest Editor, Environmental Processes (Springer) (Volume 2, Issue 1 Supplement, November 2015.

- 3) Guest Editor, Fresenius Environmental Bulletin (PSP) Special Issue “Sustainable environmental design, planning, construction and management (under preparation).
- 4) Guest Editor, Computational Materials Science “Advances in Multiscale Materials Modeling” Selected papers from EUROMAT 2017 Conference

#### **I.15. CONFERENCE CHAIRMAN**

- Session Chairman: “Computational Physics II”, International Conference of Computational methods in Sciences and Engineering (ICCMSE 2003) Kastoria, Greece 12-16 September 2003
- Session Chairman: “North American - European and South American Symposium on Science and Technology Education, “Science and Technology Literacy on the 21<sup>th</sup> Century”, May 31 to June 4, 2006, Nicosia, Cyprus
- Chairman in the 1st Fatigue Workshop for Materials Used in Vascular Surgery organized in the frame of the Project FAMAVASU (funded by the program Excellence II), 24-27/2/2015, Volos, Greece.
- Chairman στη 2nd Fatigue Workshop for Materials Used in Vascular Surgery organized in the frame of the Project FAMAVASU (funded by the program Excellence II), 27-4-2015, Thessaloniki, Greece.

#### **I.16. CONFERENCE – SYMPOSIUM ORGANIZING COMMITTEES**

- Member of the Local Organizing Committee of the 18<sup>th</sup> Summer School/Conference "Non Linear Science and Complexity", Volos, 18-30 July 2005
- Member of the scientific committee of the 2<sup>nd</sup> Educational National Conference «Building the School of Tomorrow», Greek Physical Society, Eretria, Evia, 29-31 January 2010
- Organization (with A. Liakopoulos) of the minisymposium “Atomistic and Hybrid Methodos in Fluid Mechanics” in the frame of the 10<sup>th</sup> HSTAM International Congress on Mechanics, May 25-27, 2013, Chania, Crete, GREECE

- Member of the organizing committee of the 12th International Conference “Protection and Restoration of the Environment”, Skiathos, Greece, 29 June-3 July 2014
- Member of the Local Organizing Committee of the 8th GRACM International Congress on Computational Mechanics 12th-15th July 2015, University of Thessaly, Volos GREECE
- Member of the Organizing Committee of the 2nd EWaS International Conference: “Efficient & Sustainable Water Systems Management toward Worth Living Development” June 1-4 2016 Chania, Crete, Greece.
- Member of the Local Scientific Committee in the 23<sup>rd</sup> International Congress on Sound and Vibration (ICSV23), 10-14 July 2016, Athens Greece
- Session Chairman in the 23rd International Congress on Sound and Vibration (ICSV23), 10-14 July 2016, Athens Greece
- President of the Organizing Committee of the 24<sup>th</sup> Summer Scholl Conference “Dynamical Systems and Complexity”, Volos 12-21 July 2017
- Co-organization of the symposium “Multiscale Materials Modeling” in the frame of the International Conference EUROMAT2017, Thessaloniki, September 17-22/9/2017
- Program Committee member of EDUCON2017 (IEEE Gobal Engineering Education Conference) 25-28 April 2017, Athens, Greece
- Member of the organizing committee of the 3rd Econophysics International Conference, Volos, 28-30 September 2017
- Programme Committee member International Conference Complex Systems 2018, 23-28 September, Thessaloniki, Greece
- **Invited speaker**
- Workshop Computational Materials Science, organized by the Hellenic Society for the Science and Technology of Condensed Matter under the auspices of the School of Physics of the Aristotle University of Thessaloniki on December 14 & 15, 2019 at the Faculty of Sciences.

### **I.17. PROPOSAL EVALUATOR**

- Evaluator for the Greek General Secretariat of Research
- Member of the National Committee of Evaluation in the domain of Nanotechnology for bilateral proposals of the Greek General Secretariat of Research.
- Evaluator for King Fahd University of Petroleum & Minerals (KFUPM), Saudi Arabia
- Evaluator for the Czech Science Foundation

### **I.18. DISTINCTIONS OF PAPERS**

#### 1) The paper

Georgiou, D.N., Karakasidis, T.E., Nieto, J.J., Torres, A., Use of fuzzy clustering technique and matrices to classify amino acids and its impact to Chou's pseudo amino acid composition  
*Journal of Theoretical Biology*, 257, 17 (2009)

Was among the 5 Top-cited papers that were published in the *Journal of Theoretical Biology* during 2009-2013.

#### 2) The paper

T.E. Karakasidis and C.A. Charitidis, "Multiscale modeling in nanomaterials science",  
*Materials Science & Engineering C* 27, 1082 (2007)

was among the 25 Top downloaded papers of the journal

#### 3) The paper

"An Optimized Method for 3D Magnetic Navigation of Nanoparticles inside Human Arteries" by

E. Karvelas, C. Liosis, A. Theodorakakos, T. Karakasidis

that was presented in INTERNATIONAL RESEARCH CONFERENCE- ICDDNBEA 2021 : XV.  
International Conference on Drug Delivery Nanosystems for Biomedical Engineering Applications has been selected as the best paper

### **I.19. COMPUTER SKILLS**

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- Certified trainer for teaching basic ICT skills to adults based on experience and after following a special course on adult learning and course design from the National Organisation for Accreditation of Qualifications & Vocational Guidance (Greece)

- **General skills**

- Very good knowledge of Microsoft office
- Internet and email

#### **Teaching Software**

- Blackboard, Webct, E-Class, Banner
- Seminar in the use of Interactive boards

#### **Scientific computing related**

- Large experience in development and optimization of FORTRAN programs.
- Experience in C programming
- Good Knowledge of Parallel Programming using the MPI/MPICH protocol under Linux.
- Very good knowledge of operating systems UNIX, LINUX, Windows.
- Matlab

### **I.20. LANGUAGES**

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English : Excellent

French : Excellent

German: Basic

Greek: Mother tongue

### **I.21. SOCIETY MEMBERSHIPS**

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- American Physical Society
- European Physical Society
- Materials Research Society
- IEEE Computer Society
- American Nano Society

## **Science popularization**

- 1) In 2017 I organized a team of five undergraduate students (three female student and two male students) of the Department of Civil Engineering of University of Thessaly for participation in the FameLab Competition. One of them (Doxa Psychogiou) managed to be selected among the ten Greek finalists and one as runner-up (Ioanna Skyrianou)
- 2) Science presentations in schools
- 3) I wrote a book for science popularization “Roulis the Science Cat” printed in 2015, the hero being a cat leaving with a science professor and discussing science with other animals.



## I.22. SCIENTIFIC PUBLICATIONS

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### A. THESES

- A1.** «Molecular Dynamics Simulation of Diffusion and Grain Boundaries in ionic compounds», Ph.D Thesis, University Pierre et Marie Curie (PARIS 6), Paris France, (1995). (in French)
- A2.** «Study of Dynamical Properties of Calcium Fluoride by Computer Simulations», Master Thesis, University Pierre et Marie Curie (PARIS 6), Paris France,, (1991). (in French)
- A3.** «Correlated random walks on perfect and disordered lattices», Diploma Thesis, Department of Physics, Aristotle University of Thessaloniki, Greece (1989).
- A4.** «Investigation of the use of virtual and Remote labs in the distant learning of physical sciences in Higher Education» Master Thesis in Education, Greek Open University, Greece (2009) (in Greek)

### B. PUBLICATIONS IN INTERNATIONAL PEER REVIEWED JOURNALS

- B1.** I Andreadis, AD Fragkou, **TE Karakasidis**, A Serletis, Nonlinear dynamics in Divisia monetary aggregates: an application of recurrence quantification analysis, Financial Innovation 9 (1), 1-17, 2023, <https://doi.org/10.1186/s40854-022-00419-5>
- B2.** D Angelis, F Sofos, **TE Karakasidis**, Artificial Intelligence in Physical Sciences: Symbolic Regression Trends and Perspectives, Archives of Computational Methods in Engineering, 1-21, 2023, <https://doi.org/10.1007/s11831-023-09922-z>
- B3.** EG Karvelas, SN Doukeridis, **TE Karakasidis**, IE Sarris, Focus: Fluids: Investigation of Inlet Conditions in The Mixing Process of Nanoparticles and Blood in a T-Shaped Microfluidic Reactor with Small Rectangular Cavities, The Yale Journal of Biology and Medicine 96 (1), 43, 2023, [10.59249/FUAH2942](https://doi.org/10.59249/FUAH2942)
- B4.** F Sofos, CG Papakonstantinou, M Valasaki, **TE Karakasidis**, Fiber-Reinforced Polymer Confined Concrete: Data-Driven Predictions of Compressive Strength Utilizing Machine Learning Techniques, Applied Sciences 13 (1), 567, 2022, <https://doi.org/10.3390/app13010567>
- Koutsoumpas, M Chronaki, C Tsonos, **T Karakasidis**, L Guazzelli, On the application of the Wildman-Crippen model to ionic liquids, Results in Materials 16, 100350, 2022, <https://doi.org/10.1016/j.rinma.2022.100350>
- MI Afridi, ZM Chen, **TE Karakasidis**, (2022) M Qasim, Local Non-Similar Solutions for Boundary Layer Flow over a Nonlinear Stretching

Surface with Uniform Lateral Mass Flux: Utilization of Third Level of Truncation, *Mathematics* 10 (21), 4159, <https://doi.org/10.3390/math10214159>

- B7.** A Charakopoulos, **T Karakasidis**, (2022) Backward Degree a new index for online and offline change point detection based on complex network analysis, *Physica A: Statistical Mechanics and its Applications* 604, 127929, [DOI: 10.1016/j.physa.2022.127929](https://doi.org/10.1016/j.physa.2022.127929)
- B8.** **TE Karakasidis**, F Sofos, C Tsonos (2022), The Electrical Conductivity of Ionic Liquids: Numerical and Analytical Machine Learning Approaches, *Fluids* 7 (10), 321 <https://doi.org/10.3390/fluids7100321> C Liosis, G Sofiadis, E Karvelas, **T Karakasidis**, I Sarris, (2022) A Tesla Valve as a Micromixer for Fe<sub>3</sub>O<sub>4</sub> Nanoparticles, *Processes* 10 (8), 1648, <https://doi.org/10.3390/pr10081648>
- B10.** AD Fragkou, I Andreadis, **TE Karakasidis**, The Visual Boundary Recurrence Plot: A Closer Look into the Dynamics of Recurrence Plots (2022), *International Journal of Bifurcation and Chaos* 32 (09), 2250131, <https://doi.org/10.1142/S0218127422501310>
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## **E. BOOK CHAPTERS**

- H1. T. Karakasidis** and A. Liakopoulos, Chapter 17 Understanding slip at the nanoscale in fluid flows using atomistic simulations, in "Detection of pathogens using micro- and nano-technology", IWA Publishing (2012)
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## **F. TEXTBOOKS (IN GREEK)**

1. I. Sarris, **T. Karakasidis**, “Numerical methods for engineers” (in Greek) Tziolas publishing, 1st edition 2012. 212p.. 25x17.
2. J.2 E. Evdoridou, **T. Karakasidis**, “Academic writing” (in Greek, with examples in English, French, Italian), Tziolas publishing, 1st edition 2013, 614p. 25x17
3. E. Evdoridou, **T. Karakasidis** – Art and Science, Galileo Galilei, Umberto Eco, Italo Calvino / 2nd Edition, University of Thessaly publishing, 108p. · 24x17
4. Sarris I., **T. Karakasidis**, “Numerical methods for engineers” (in Greek) Tziolas publishing, 2nd edition 2014, 514p. · 24x17
5. Sarris I., **T. Karakasidis**, “Numerical methods for engineers” (in Greek) Tziolas publishing, 3rd edition 2015, 604p. · 24x17
6. E. Evdoridou, **T. Karakasidis**, “Academic writing” (in Greek, with examples in English, French, Italian), Tziolas publishing, 2nd edition, 2015, 764p, 24x17.
7. E. Evdoridou, **T. Karakasidis**, Writing, écriture, scrittura, Tziolas publishing, 2015. – 404p. 24x17.
8. Sarris I., **T. Karakasidis**, “Numerical methods for engineers” (in Greek) Tziolas publishing, 4th edition, 2017. 816p. 24x17
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The textbooks are selected as suggested textbooks in more than 25 departments in Universities all over Greece.

## **G. POPULAR SCIENCE**

1. “Roulis the Science Cat”, T. Karakasidis (in Greek (a book for small children the main hero being a cat who lives with science professor) 2015, Diaforos editions

## **H. OTHER REPORTS**

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**H2.E.** Tsironi, **T. Karakasidis**, Satisfaction and employment survey of the graduates of the postgraduate study program of the Department of Mechanical Engineering of the University of Thessaly, Volos (Greece) 2003 (in Greek, 44 pages).

### **I.23. CITATIONS**

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1. Scopus (without any self-citations): 1678, h factor =23
2. Google Scholar: total citations (from all sources) 2688 h factor =29