

## Professor Constantine N. David

Director of Manufacturing Technology & Production Systems Laboratory (MT-Lab)  
Mechanical Engineering Department, School of Engineering  
International Hellenic University, Greece

### 1. PERSONAL DATA

Address : International Hellenic University, School of Engineering  
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### 2. EDUCATION

1989 Mechanical Engineering, School of Engineering, Aristotle University of Thessaloniki, Greece, Integrated Master Diploma (Bsc and Msc)  
1997 Doctor of Technical Sciences (Dr.-Ing.), Department of Mechanical Engineering, Technical University of Kaiserslautern, Germany  
Dissertation title:  
"Investigation of the Process and System Dynamics in Grinding using ultra-hard Grinding Tools"  
Distinction Scholarship from German Academic Exchange Service (DAAD)

### 3. ACADEMIC & PROFESSIONAL RECORD

3/2020 – Vice President of the Research Committee of the International Hellenic University  
3/6/2019 – 02/2020 Member of the Governing Committee of the International Hellenic University  
8/5/2019 – Professor, Department of Mechanical Engineering, School of Engineering, International Hellenic University  
2017 – 7/5/2019 Vice Rector for Research & Development of TEI of Central Macedonia, Serres, Greece  
2016 – 2019 Director of the Center for Applied Research (KTE) of Serres, Greece  
2014 – 2017 Dean of School of Engineering, Technological Education Institute (TEI) of Central Macedonia, Greece  
2009 – 7/5/2019 Professor, Department of Mechanical Engineering, Technological Education Institute (TEI) of Central Macedonia, Greece. Director of the Laboratory of Manufacturing Technology & Production Systems.  
2005 – 2009 Associate professor, Department of Mechanical Engineering Technological Education Institute (TEI) of Serres, Greece  
2005 – 2010 Dean of School of Engineering TEI of Serres, Greece  
2001 – 2005 Assistant professor, Department of Mechanical Engineering Technological Education Institute (TEI) of Serres, Greece

2000 – 2001	Visiting assistant professor (presidential decree 407/80), Department of Mechanical Engineering University of Western Macedonia, Greece
1997 – 2000	Research fellow in the Laboratory of Machine Tools and Manufacturing, School of Engineering at the Aristotle University of Thessaloniki, Greece
1992 – 1997	Research assistant in the Institute of Manufacturing and Business Organization (Lehrstuhl für Fertigungstechnik und Betriebsorganisation / FBK) at the Technical University of Kaiserslautern, Germany
1990 – 1991	Mechanical Engineer at Mercedes Benz AG, Manufacturing of diesel engines, Mannheim Germany

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

My research and academic interests are focused on the following subjects:

- Manufacturing Technologies
- Machining Processes – Machine Tools
- CAD/CAM/CAE
- Reverse Engineering – Additive Manufacturing
- Materials Testing & Characterization
- Vibration Analysis and Signal Processing
- Bioengineering

#### **5. RESEARCH PROJECTS**

Participation as project leader or as the main researcher in the following research projects:

1. Main researcher in the research project with the title “Schleifen von Hochleistungskeramik” funded by the German Federal Ministry of Education and Research (BMFT), FBK Institute, Technical University of Kaiserslautern, 1992-1994
2. Main researcher in the research project with the title "Analyse und Modellierung des dynamischen Schleifprozeßverhaltens” funded by the German Research Association (DFG), FBK Institute, Technical University of Kaiserslautern, 1995-1996.
3. Main researcher in the European Research Project “Refine” BRPR970409 in the frame of BRITE/EURAM (4 FWP), Laboratory of Machine Tools and Manufacturing, Aristotle University, 1996-2000.
4. Main researcher in the European Research Project IPS 1999-00043, INNOVATION (5 FWP, EU), 1999-2002
5. Main researcher in the Research Project CSA98 LOT 119 “Design and testing of an interferometric pressure sensor” funded by the European Union (DG XII) and the Research Center ISPRA, 1999-2001.
6. Main researcher in the industrial research project “Development of a testing method of the fatigue strength of PVD coated cutting tools - Impact Testing”, funded by the German company CEMECON GmbH, Laboratory of Machine Tools & Manufacturing, Aristotle University, 1998-2000
7. Main researcher in the research project “Assessment of the fatigue life of hard mono and multi layered Thermal Spray coatings”, PAVET1996 (96BE307), funded by the Greek Secretariat of Research & Technology, Laboratory of Machine Tools and Manufacturing, Aristotle University, 1997-2000
8. Main researcher in the Pilot Research Project funded by the Greek Public Gas Company (EDA) with the subject “Development of an automated electronic system for monitoring and control of the natural gas network in Thessaloniki based on GIS platform”, 1999-2000.
9. Main researcher in the European Research Project GROWTH with the title “Coating for supercritical steam cycles – SUPERCOAT”, Laboratory of Physical Metallurgy, Mechanical Engineering Department, Aristotle University, 2003-2004.

10. Research coordinator of the research project: "Monitoring of multi axes milling process in real time with the aid of measuring techniques and a simulation model", Research Programme ARCHIMEDES I, Mechanical Engineering Department, TEI Serres, MIS 88318 EPEAEK II (2004-2008).
11. Main researcher in the research project "New Algorithms of Reverse Engineering and Application in Production of Implants" TEI of Crete, research Programme ARCHIMEDES II, EPEAEK II 2005-2006.
12. Main researcher in the research project "Design and Optimization of an Air pipe of a solar dryer" Research Program ARCHIMEDES II, EPEAEK II, Mechanical Engineering Department, TEI Serres, (2005-2006)
13. Research coordinator of the research project "Center of Processing and Technology of Advanced Materials", European Programme INTERREG III/A – PHARE CBC Greece – Bulgaria 2000-2006, TEI of Serres, MIS 102652, 2006-2008.
14. Main researcher in the research project "Innovative activities in the field of characterization of the mechanical properties of thin films and advanced materials" European Programme INTERREG IIIA Greece – Cyprus 2000-2006, TEI of Crete SAE 2007ΣΕ04330009, 2006-2008.
15. Main researcher of the research project "Investigation of the wear of cutting tools in milling processes", Research Committee of TEI of Serres, under grant 21/3/1-4-2009, 4/2009-1/2010
16. Head of the research team of TEI Serres in the research project "Development of new products and replicas of cultural heritage by using Reverse Engineering techniques and manufacturing in micro scale" 09-SYN-62-331, funded by the Greek Secretariat of Research & Technology within the Frame Workprogramme "Cooperation", NSRF, 2010-2012
17. Head of the research team of TEI Serres in the research project "Design and optimization of cold isostatic pressure forming processes" funded by the Greek Secretariat of Research & Technology within the Frame Workprogramme "Vouchers for SMEs", 45383916-02-000090, 2011-2014
18. Head of the research team of the research project "Experimental investigation of the fatigue strength of slurry coatings deposited on P91 steel by successive impact loading", Research Committee of TEI of Serres, under grant 24/5/23-3-2011, 4/2011-1/2012
19. Head of the research team of the research project "Computational investigation of cutting tool failure in gear hobbing using the finite element method", Research Committee of TEI of Serres, under grant 23/5/23-3-2011, 4/2011-12/2012
20. Main researcher in the research project "Improving Surface Properties of Titanium Alloy", funded under the National Research Programme ARCHIMEDES III, MIS 380873, 2012-2015.
21. Main researcher in the research project "Investigation of shear instability in the orthogonal machining of Ti6Al4V alloy using the finite element method", National Research Programme ARCHIMEDES III, Mechanical Engineering Department, TEI of Central Macedonia, Serres, MIS 383572, 2012-2015
22. Main researcher in the research project "SEcuring TRAnsit CONTainers - SETRACON", Joint Operational Programme "BLACK SEA BASIN 2007-2013". Alexander Technological Institute of Thessaloniki, Greece, 2015
23. Head of the research team of the research project "Integrated Operations Center for Providing Humanitarian Assistance - HELP" Interreg IPA Cross-Border Cooperation Programme Greece - The Former Yugoslav Republic of Macedonia 2014-2020.
24. Scientific supervisor of the project "FEM Modeling of Human Mitral Valve disease based on Patient Ultrasound Cardiology Clinical Data according to Carpentier's functional classification" funded by the National Operational Programme ESPA 2014-2020 "Support for researchers with an emphasis on young researchers", MIS 5048207, 2019-2021.
25. Head of the research team of the International Hellenic University in the research project "GREEN nano-structured multifunctional protective COATings - GREENCOAT" T2EDK-03585, funded by the Greek Secretariat of Research & Technology within the Frame Workprogramme "RESEARCH – CREATE – INNOVATE", NSRF 2014-2020, MIS 5063784, 2020-2023.

Participation as project leader or as the main researcher in the following academic and educational projects:

1. Project manager of the academic project EPEAEK II "Reformation of the undergraduate study programme of the Mechanical Engineering Department of TEI Serres", MIS 75478, (2003-2005)
2. Member of the main team of the educational project "Undergraduate study programmes - Central Action of TEI Serres", (2003-2005).
3. Project manager of the ETPA project "Equipment procurement for the subvention of the actions concerning the reformation of the undergraduate study programme of Mechanical Engineering Department, TEI of Serres" EPEAEK II, MIS 91356 (2003-2005)
4. Project manager on behalf of the Mechanical Engineering Department in the frame of the Central Macedonia's programme "Update of the research equipment of the Laboratories of TEI Serres – MIS 97077 Measure 1.2 (1/2005-12/2006)
5. Project manager of the Action 5.2.7a «Supplementary educational equipment of the Departments of Higher Education (ETPA / EPEAEK II), M.I.S.107699, (2006)
6. Member of the working group in the frame of the project INTERREG/PHARE IIIA/ GREECE-BULGARIA CBC, Measure 2.3.2 "Cooperation between Educational and Research Institutions", Action " Development of joint training activities" MIS 102662 and responsible of the subject "Technology & Technological Innovation", (2006-2008).
7. Main member of the scientific team of TEI Serres in the European project DELFEE 2004, in the frame of Leonardo Da Vinci (9/2004-6/2005)
8. Project responsible of the Mechanical Engineering Department TEI Serres in the educational programme EPEAEK 2.5.1.a (Ministry of Education, Lifelong Learning and Religious Affairs) "Development of Institutes of Life Long Learning", (2008)
9. Project manager of TEI Serres for the project "Update and improvement of the infrastructure of TEI Serres Research Laboratories" Operational Programme NSRF "Macedonia - Thrace 2007-2013" Region of Central Macedonia, MIS 296099 (2010)
10. Head of the Internship Office at TEI of Serres 2012-2022, which is operating within the framework of the Operational Program "Education and Lifelong Learning", MIS 5030830.

#### **Industrial Projects:**

1. Machinability Assessment of Brass Alloys (CW617N, CW627N, CW628N), funded by Hellenic Center for Research of Metals (ELKEME), (2022)
2. Vibration analysis and dynamic balancing of exhaust gas units CVF-1, CVF-2, CVF-K 1, CVF-K2 at Northern Greece Ceramic Industry (KEBE), (2022).
3. Experimental assessment of the mechanical strength (tensile and compression strength) of aluminum alloys, Hellenic Center for Research of Metals (ELKEME), 2020
4. Mechanical Testing (tensile and compression tests) of aluminum profiles C24 classification according to the industrial standard TL116, Hellenic Center for Research of Metals (ELKEME), 2019
5. Experimental determination of the mechanical properties: tensile strength, wear resistance and surface hardness of lift components, KLEEMANN SA, 2017-2018
6. Experimental assessment of the mechanical strength of plastic boxes, type A501, Hellenic Center for Research of Metals (ELKEME), 2017
7. Testing and strength analysis of lift components, KLEEMANN SA, 2016
8. Computed Tomography of industrial parts to develop advanced modeling techniques, BETA CAE S.A (2016)
9. Experimental determination of the mechanical strength (tensile and compression strength) of aluminum alloy parts category C24, Hellenic Center for Research of Metals (ELKEME), 2016
10. Vibration analysis and dynamic balancing of air depression units at the Amynteo-Filotas power plant of the Hellenic Public Power Corporation (2016)
11. Redesign and optimization of an injection molding die component for the production of a micro sprinkler part, AGRODRIP S.A Irrigation systems (2015)
12. Redesign and optimization of an irrigation fogger, AGRODRIP S.A Irrigation systems (2014)
13. Vibration analysis and dynamic balancing of exhaust gas units at the Amynteo-Filota power plant of the Hellenic Public Power Corporation (2014)
14. Experimental investigation of the machinability of extruded and drawn brass alloys, FITCO S.A (2013)
15. Experimental investigation of the mechanical strength of aluminum alloy parts for the automobile industry, ETEM (2012-2014)

16. Vibration analysis of exhaust gas units at the Kardia - Kozani power plant of the Hellenic Public Power Corporation (2010-2013)
17. Investigation of the mechanical strength of elevators sliding aluminum-alloy base. Material testing and Analysis. FormAction Company. Thessaloniki's Industrial Area. (2011).
18. Analysis of the mechanical strength of lift cabins in the lift industry DOPPLER S.A (2006)
19. Vibration analysis of exhaust gas units and dynamic balancing of air depression units at the Ptolemais power plant of the Hellenic Public Power Corporation (2005-2009)
20. 3D-design and physical model manufacturing by rapid prototyping, SEMITRON S.A, Thessaloniki industrial area (2004)
21. Design & manufacturing of a forming die implemented in the industrial production line of a sheet metal part for waste bins. VIOKADO S.A. Industrial Area of Thessaloniki (2003)
22. Manufacturing of office furniture parts by rapid prototyping. DROMEAS S.A, Industrial area of Serres, (2003-2009)
23. Design and development of a scavenger wheelbarrow with modern ergonomic design entirely of aluminum alloy, Ecological Progress S.A. Thessaloniki, (2001)

## 6. PUBLICATIONS

### PhD-Dissertation

**K. David:** Untersuchungen zum dynamischen Prozeß- und Systemverhalten beim Schleifen mit hochharten Schleifscheiben. FBK-Produktionstechnische Berichte, Band 24, Kaiserslautern / Germany 1996, ISSN 0937-9061.

### Journal Papers

1. **K. David**, G. Warnecke: A correlation between cutting process and dynamics of the machine-tool-system in grinding. Transactions of the North American Manufacturing Research Institution of SME, Volume XXIV, Michigan, Ann Arbor USA, pp. 51-56, (1996).
2. G. Warnecke, **K. David**: A modeling method to analyze the dynamic behavior of grinding process and predicting the stability limit. Journal of Production Engineering WGP Annals, Volume VII/2, pp. 115-120, (2000).
3. K. Bouzakis, N. Vidakis, **K. David**: The concept of an advanced impact tester supported by evaluation software for the fatigue strength characterization of hard layered media. Journal "Thin Solid Films", Elsevier, Issue 355-356, p. 322-329, (1999)
4. K. Bouzakis, N. Vidakis, **K. David**: Characterization of thin hard coatings regarding their lifetime performance and typical applications. Journal of Optoelectronics, Vol. 6, No. 4, pp. 3-12, (1998).
5. K. Bouzakis, A. Lontos, N. Vidakis, **K. David**, V. Kechagias: Determination of the creep behaviour of monolayer thick plasma sprayed coatings, by means of the Impact Test and analytical FEM supported evaluation procedure. International Journal „Thin Solid Films“, Vol. 377-378 (1-2), pp. 373-381, Elsevier, (2000).
6. K. Bouzakis, N. Vidakis, A. Lontos, S. Mitsi, **K. David**: Implementation of low temperature deposited coating lifetime parameters in commercial roller bearings catalogues. International Journal "Surface and Coatings Technology" Vol. 133-134 pp. 489-496, Elsevier, (2000).
7. P. Agrianiadis, K. G. Anthymidis, **K. David** and D. N. Tsipas. "Deposition of coatings containing Si and B on steels in a CVD fluidised bed reactor. WIT Transactions on Engineering Sciences, Vol 49. (2005), pp.195-201.
8. G. Petropoulos, N. Vaxevanidis, A. Iakovou and **K. David**. "Multi-Parameter Modeling of Surface Texture in EDMachining using the Design of Experiments methodology". Journal of Materials Science Forum. Vol. 526, pp. 157-162, (2006).
9. **C. David**, K.G. Anthymidis, P. Agrianiadis and D.N. Tsipas. "Determination of the fatigue behavior of aluminide coatings by means of the impact testing method". Journal of Key Engineering Materials. Vol. 348-349, pp. 645-648, (2007).
10. **C. David**, K.G. Anthymidis and P. Agrianiadis. "Determination of the fatigue resistance of HVOF-thermal spray WC-CoCr coatings". Journal of Testing & Evaluation, ASTM, Vol. 35, Issue 6, pp. 630-633, (2007).

11. **K. David**, K. G. Anthymidis, P. Agrianidis & D. N. Tsipas. "Determination of the fatigue behavior of coatings by means of an improved impact testing evaluation procedure". WIT Transactions on Engineering Sciences, Computational Methods and Experiments in Materials Characterization. Vol 57. (2007), pp.13-21.
12. P. K. Gotsis, Ch. Chamis, **K. David** and F. Abdi, "Progressive Fracture of Laminated Composite Stiffened Plate", NASA/TM 2007-214927, USA. pp.1-7, (2007).
13. **C. David**, K.G. Anthymidis, P. Agrianidis and G. Petropoulos. "Characterization and Tribological Properties of Boride Coatings of Steels in a Fluidized Bed Reactor". Journal of Industrial Lubrication & Tribology. Vol. 60, Issue 1, pp. 31-36, (2008).
14. Maravelakis, E. - **David, K.** - Antoniadis, A. - Manios, A. - Bilalis, N. - Papaharilaou, Y. "Reverse Engineering Techniques for Cranioplasty. A case study". Journal of Medical Engineering & Technology, Taylor & Francis, Vol.32, No.2, pp. 115-121, (2008).
15. **C. N. David**, M. A. Athanasiou, K. G. Anthymidis and P.K. Gotsis. "Impact fatigue failure of HVOF coatings and modeling of the viscoelastic properties of coating-substrate compound", Journal of ASTM International, Vol. 5, No. 6, pp. 233-241, (2008).
16. K.G. Anthymidis, **C. David** and D.N. Tsipas, "Fatigue resistance assessment of slurry coating steel substrate compounds under cyclic loading", Journal of Key Engineering Materials, Vols. 385-387, pp. 133-136, (2008).
17. P. Agrianidis, K.G. Anthymidis and **C. David**, "Reinforcement of Aluminum by TiB dissolution", Journal of Key Engineering Materials, Vols. 385-387, pp 785-788, (2008).
18. P. Agrianidis, **C. David**, K. Anthymidis, M. Ekhrwat, "Interregional technology transfer on advanced materials and renewable energy systems", Journal of Materials Methods and Technologies, Vol. 2, Part 1, pp. 4 – 10, (2008).
19. P. K. Gotsis, C. Chamis, **K. David**, and F. Abdi. "Progressive Fracture of Laminated Fiber-Reinforced Composite Stiffened Plate". International Journal of Theoretical & Applied Fracture Mechanics, Elsevier, Vol. 51, Issue 2, pp. 144-147, (2009).
20. D. J. Kakaletsis, **K. N. David**, C. G. Karayannis, "Effectiveness of seismic retrofitting techniques for bare and infilled R/C frames", Journal of Structural Engineering and Mechanics, Volume 39, Number 4, (2011)
21. K.G. Anthymidis, **C. N. David** and D.N. Tsipas, "Evaluation of the fatigue behavior of aluminide coating steel substrate compounds by means of the impact testing method", Journal of Materials and Manufacturing Processes, Vol. 26, Issue 1, pp.58-61, (2011)
22. O. Friderikos, G. Maliaris, **C. N. David**, and I. Tsiafis, "An investigation of cutting edge failure due to chip crush in carbide dry hobbing using the finite element method", Journal of Advanced Manufacturing Technology, Springer, Vol. 57, Numbers 1-4, pp. 297-306, (2011)
23. M. A. Athanasiou, G. C. Anagnostopoulos, A. C. Iliopoulos, G. P. Pavlos, and **C. N. David**, "Enhanced ULF radiation observed by DEMETER two months around the strong 2010 Haiti earthquake", Journal of Natural Hazards and Earth Systems Sciences, Vol. 11, pp. 1091–1098, (2011).
24. Anthymidis, K.G., Balouktsis, A., **David, C.** and Trakali, A., Wear of cutting tools used in milling treatments, Journal of Key Engineering Materials, Vol. 465, pp. 165-168, (2011).
25. Anthymidis, K.G. , **David, C.** , Trakali, A. , Tsipas, D.N. "Evaluation of the fatigue resistance of chromium slurry coating steel substrate compounds by means of an improved impact testing procedure", Key Engineering Materials, 488-489, pp. 420-423 (2012).
26. S.A. Grammatikos, E.Z. Kordatos, T.E. Matikas, **C. David**, A.S. Paipetis: "Current injection phase thermography for low-velocity impact damage identification in composite laminates", Materials & Design, Elsevier, Volume 55, pp.429-441, (2014).
27. K. Anthymidis, **K. David**, A. Trakali and P. Agrianidis: "Characterization of Al metal matrix composites produced by the stir-casting method", Key Engineering Materials, 577-578, pp. 85-88 (2014).
28. K. Anthymidis, **K. David**, A. Trakali, D. Tsipas: "Siliconizing in a Fluidized Bed Reactor" Key Engineering Materials, 592-593, pp. 409-412 (2014).
29. K. Anthymidis, **K. David**, P. Agrianidis, A. Trakali: "Production of Al Metal Matrix Composites by the Stir-casting Method", Key Engineering Materials, 592-593, pp. 614-617 (2014).
30. M. A. Athanasiou, G. C. Anagnostopoulos, **C. N. David** and G. G. Machairidis, "The ULF electromagnetic radiation observed in the topside ionosphere above boundaries of tectonic plates", International Journal of Research in Geophysics [ISSN 2038-9663] Vol.4, No 1 (2014).
31. A. Korlos, O. Friderikos, G. Mansour, **C. David**, D. Sagris: "Orthogonal cutting of Ti6Al4V alloy using experimental and theoretical analysis", Applied Mechanics & Materials, Vols. 809-810, pp. 183-188, (2015).

32. S. A. Tsipas, D. N. Tsipas, **C. N. David** and P. K. Gotsis: "Boronizing of Metallic Materials. A Review", *Journal of Materials Science and Technology* 2015, Vol. 23, No. 2, pp. 160–184, (2015).
33. A. Constantin, **C. David**: "Multiplexed delay compensation and circular buffer method for moving average filtering of signal acquired from tactile sensors in a mechatronics system for walking analysis", "HIDRAULICA" (No. 4/2015) Magazine of Hydraulics, Pneumatics, Tribology, Ecology, Sensorics, Mechatronics, ISSN 1453 – 7303, (2015).
34. A. Korlos, O. Friderikos, D. Sagris, **C. David**, G. Mansour: "Experimental analysis of Ti6Al4V orthogonal cutting", *Key Engineering Materials*, Trans Tech Publications, Vol. 665, pp 17-20, (2016).
35. G. Mansour, K. Tzikas, D. Tzetzis, A. Korlos, D. Sagris, **C. David**, Experimental and Numerical Investigation on the Torsional Behaviour of Filament Winding-Manufactured Composite Tubes, *Applied Mechanics & Materials*, Vol. 834, pp. 173-178, (2016).
36. A. Korlos, D. Tzetzis, G. Mansour, D. Sagris, **C. David**, The Delamination Effect of Drilling and Electro-Discharge Machining on the Tensile Strength of Woven Composites as Studied by X-ray Computed Tomography, *Int. J. of Machining and Machinability of Materials*, Vol. 18, No 4, pp. 426-448, (2016).
37. M.C. Vlachou, J.S. Lioumbas, **K. David**, D. Chasapis, Th. D. Karapantsios, "Effect of channel height and mass flux on highly subcooled horizontal flow boiling", *Journal of Experimental Thermal and Fluid Science* 83, pp.157–168, (2017)
38. Stergianni E., Sagris D., Tsiafis Ch., **David C.** and Tsiafis I., Influence Analysis of Micro-Milling Vibrational Phenomena on Workpiece Topomorphy, *Journal of Solid State Phenomena*, Vol. 261, pp 77-84, (2017)
39. A. I. Toulfatzis, G. A. Pantazopoulos, **C.N. David**, D. S. Sagris and A. S. Paipetis, "Machinability of Eco-Friendly Lead-Free Brass Alloys: Cutting-Force and Surface-Roughness Optimization", *Journal of Metals*, 8, 250; doi:10.3390/met8040250, (2018).
40. **C. David**, D. Sagris, E. Stergianni, Ch. Tsiafis, i. Tsiafis, "Experimental Analysis of the Effect of Vibration Phenomena on Workpiece Topomorphy Due to Cutter Runout in End-Milling Process", *Journal of Machines*, 6, 27; doi:10.3390/machines6030027, (2018).
41. A. I. Toulfatzis, G. A. Pantazopoulos, **C.N. David**, D. S. Sagris and A. S. Paipetis, "Final Heat Treatment as a Possible Solution for the Improvement of Machinability of Pb-Free Brass Alloys", *Journal of Metals*, 8, 575; doi:10.3390/met8080575, (2018).
42. J. Kozatsas, K. Kotsakis, D. Sagris, **K. David**, "Inside out: Assessing pottery forming techniques with micro-CT scanning. An example from Middle Neolithic Thessaly", *Journal of Archaeological Science*, Elsevier, Vol. 100, pp. 102-119, (2018)
43. Naka, O., Millar, B.J., Sagris, D., **David, C.**, "Do composite resin restorations protect cracked teeth? An in-vitro study", *British Dental Journal*, Vol. 225 (3), pp. 223-228, doi: 10.1038/sj.bdj.2018.539, (2018).
44. M.C. Vlachou, J.S. Lioumbas, M. Kostoglou, **K. David**, D. Chasapis, C. Schwarz, J.W.A. van Loon, T.D. Karapantsios, "Subcooled flow boiling in horizontal and vertical macro-channel under Earth-gravity and hyper-gravity conditions", *International Journal of Heat and Mass Transfer*, V.133, pp.36-51, <https://doi.org/10.1016/j.ijheatmasstransfer.2018.12.086>, (2019)
45. Gkouvas G., Agathangelidis F., Nakas C., **David C.**, Sagris D., Petsatodis G., "Biomechanical comparison of six intramedullary nails, for the treatment of extraarticular, proximal tibial fractures", *HIPPOKRATIA* 2019 23, 2: 58-63 (2019).
46. Friderikos O., Sagris D., **David C.**, Korlos A., "Simulation of Adiabatic Shear Bands in Orthogonal Machining of Ti6Al4V using a Rigid-Viscoplastic Finite Element Analysis", *Metals - Open Access Metallurgy Journal* 10(3):338, (2020).
47. O. Friderikos, M. Olive, E. Baranger, D. Sagris, **C. David**, "A Non-Intrusive Space-Time Interpolation from Compact Stiefel Manifolds of Parametrized Rigid-Viscoplastic FEM Problems" *Computational Mechanics*, Springer, Issue 4/2021 (2021).
48. M. Petousis, N. Vidakis, E. Velidakis, J.D. Kechagias, **C.N. David**, S. Papadakis and N. Mountakis, "Affordable Biocidal Ultraviolet Cured Cuprous Oxide Filled Vat Photopolymerization Resin Nanocomposites with Enhanced Mechanical Properties", *Biomimetics* 2022, 7, 12. <https://doi.org/10.3390/biomimetics7010012>.
49. N. Vidakis, M. Petousis, N. Michailidis, S. Grammatikos, **C. N. David**, N. Mountakis, A. Argyros and O. Boura "Development and Optimization of Medical-Grade Multi-Functional Polyamide 12-Cuprous Oxide Nanocomposites with Superior Mechanical and Antibacterial Properties for Cost-Effective 3D Printing", *Nanomaterials* 2022, 12(3), 534 <https://doi.org/10.3390/nano12030534>

50. M. Petousis; N. Vidakis; N. Mountakis; S. Grammatikos; V. Papadakis; **C. N. David**; A. Moutsopoulou; S. C. Das, "Silicon Carbide Nanoparticles as a Mechanical Boosting Agent in Material Extrusion 3D-Printed Polycarbonate, *Polymers* 2022, 14, 3492, <https://doi.org/10.3390/polym14173492>

### Papers in Conference Proceedings

51. K. Bouzakis, **K. David**, N. Vidakis: Development of an Impact Tester and of its software to determine the fatigue strength of hard coatings. *Annals of 9th International DAAAM Symposium "Intelligent Manufacturing, Automation & Networking"*, Cluj-Napoca, Romania, 22-24th October 1998, pp. 59-60.
52. K. Bouzakis, **K. David**, N. Vidakis: Development of testing and evaluation procedures to determine the fatigue strength of hard coatings. *Proceedings of 3rd International Conference of Tribology, BALKANTRIB '99, Vol. III, Sinaia – Romania*, pp. 291-302.
53. K. Bouzakis, **K. David**, N. Vidakis: Prediction of the fatigue performance of coated systems through an advanced impact tester and the software supported evaluation of experimental data. *Proceedings of 1<sup>st</sup> International Conference "THE Coatings in Manufacturing Engineering"*, Thessaloniki 14-15 October 1999, pp.213-222.
54. Bouzakis K.-D., Vidakis N., **David K.**, Siganos A., Leyendecker T., Erkens G., Wenke R.: Determination of the mechanical properties and fatigue resistance of multilayer PVD coatings on various substrates. *Proceedings of 1<sup>st</sup> International Conference "THE Coatings in Manufacturing Engineering"*, 14-15 October, Thessaloniki, 1999, pp.237-248.
55. K. Bouzakis, A. Lontos, N. Vidakis, **K. David**, V. Kehagias: Determination of mechanical properties of thick coatings produced by plasma spray method. *Proceedings of 1<sup>st</sup> International Conference "THE Coatings in Manufacturing Engineering"*, Thessaloniki 14-15 October 1999, pp. 269-282.
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83. K.G. Anthymidis, A. Balouktsis, **C. David** and A. Trakali, "Wear of cutting tools used in milling treatments", Materials Structure & Micromechanics of Fracture, Brno Czech Republic, June 28-30, 2010.
84. **C. David**, A. Antoniadis, O. Friderikos, D. Sagris, "Experimental and Computational Investigation of End-Milling and Development of a Simulation Model describing the machining process", 7th International Conference "New Horizons in Industry, Business and Education (NHIBE 2011)" 25-26 August 2011 on Chios Island, Greece
85. Friderikos O., Korlos A., **David K.**, Tsiafis I., "Investigation of Shear Instability in Orthogonal Machining of Ti6Al4V Alloy Using the Finite Element Method", 7th GRACM International Congress on Computational Mechanics, Athens, 30 June – 2 July 2011
86. E. Varitis, D. Sagris, **C. David**, A. Lontos, Directional Variation of Trabecular Bone in the Femoral Head, a  $\mu$ -CT based Approach, Proceedings of the International Conference on Bioinformatics Models, Methods and Algorithms, Bioinformatics 2013, Barcelona - Spain, 11 - 14 February, pp. 237-241, 2013.
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88. K. Athymidis, A. Trakali, **K. David**, and D. Tspas: "Siliconizing in a fluidized bed reactor", 7<sup>th</sup> International Conference on Materials Structure & Micromechanics of Fracture, 1-3 July 2013, Brno, Czech Republic.
89. A. Korlos, D. Tzetzis, G. Mansour, D. Sagris, **C. David**, "Comparison of drilling and electro-discharge open-hole machining of carbon fiber reinforced polymers", 5th International Conference on Manufacturing Engineering (ICMEN), Thessaloniki, Greece, 1-3 Oct. 2014, pp. 41-50, 2014.
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92. O. Friderikos, A. Korlos, **C. David**, D. Sagris, G. Mansour, "Formation of adiabatic shear bands in orthogonal machining of Ti6Al4V alloy", 8th GRACM International Congress on Computational Mechanics, Volos, Greece, 12-15 July, 2015.
93. A. Korlos, O. Friderikos, D. Sagris, **C. David**, G. Mansour, Experimental analysis of Ti6Al4V orthogonal cutting, 14th International Conference on Fracture and Damage Mechanics, Budva, Montenegro, September 21-23, 2015.
94. V. Dutschk, R. Kuipers, K. Kalič, **K. David**, Th. Karapantsios, "Wetting behaviour of two waterborne polymer dispersions – polyurethane and polyester – on different polyester and glass fibre fabrics", International Symposium SGI-FunD 2015, 29th–31st October 2015, Sofia, Bulgaria.
95. J. Kozatsas, K. Kotsakis, D. Sagris, **C. David**, "Studying Ceramic Technology from Inside. Micro-CT Scanning of a Pottery Assemblage from MN Sesklo (Thessaly, Greece)", 41st International Symposium on Archaeometry (ISA), Kalamata-Greece, 2016.
96. G. Mansour, K. Tzikas, D. Tzetzis, A. Korlos, D. Sagris, **C. David**, "Experimental and numerical investigation on the torsional behaviour of filament winding-manufactured composite tubes", 17th International Conference on Applied Mathematics and Approximation Theory, ICAMAT 2015, 9-10 Nov. 2015, Venice, Italy, 2015.
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- alloys", International Conference EUROMAT 2017, 17-22 September 2017, Thessaloniki, Greece.
98. **C. David**, D. Sagris, E. Stergianni, Ch. Tsiafis, I. Tsiafis, "Experimental analysis of chatter vibration in micro-milling", CONFERENG 2016, Targu-Jiu, November 4-5, 2016.
  99. E. Stergianni, D. Sagris, C. Tsiafis, **C. David**, I. Tsiafis, "Influence Analysis of Micro-milling vibrational phenomena on workpiece topomorphy", 9th International Congress on Precision Machining ICPM 2017 September 6-9, 2017 Athens, Greece.
  100. D. Sagris, **C. David**, E. Stergianni, C. Tsiafis, I. Tsiafis, "Computational and experimental analysis of machine tool vibrations in micro-milling", International Conference on Innovative Manufacturing Engineering and Energy IManE&E, May 25-26 Iași România, 2017.
  101. E. Stergianni, C. Tsiafis, D. Sagris, **C. David**, I. Tsiafis, "Computational and experimental analysis of machine tool vibrational phenomena in micro-milling process and their influence on workpiece topomorphy", 6th International Conference on Manufacturing Engineering ICMEN, 5-6th October 2017 Thessaloniki, Greece.
  102. J. Kozatsas, K. Kotsakis, D. Sagris, **K. David**, "Studying ceramic technology from inside. Micro-CT scanning of a pottery assemblage from Middle Neolithic Sesklo, 41st International Symposium on Archaeometry (ISA), May 15 - 21, 2016
  103. J. Kozatsas, K. Kotsakis, D. Sagris, **K. David**, Individualised traditions. Tracing out pottery forming techniques through X-ray micro-CT in a pottery assemblage from Middle Neolithic Sesklo (Thessaly, Greece), 15th European Meeting on Ancient Ceramics (EMAC), Barcelona, Spain, 16-18 Sept, 2019.
  104. Friderikos O., Olive M., Baranger E., Sagris D. and **David C. N.**, A Space-Time POD Basis Interpolation on Grassmann Manifolds for Parametric Simulations of Rigid-Viscoplastic FEM, 7th International Conference on Manufacturing and Materials Engineering (ICMMEN), 2-3 July 2020, Thessaloniki, Greece.
  105. M. Didagelos, O. Freiderikos, A. Pagiantza, D. Sagris, A. Ziakas, **K. David**, "Three-dimensional model of mitral valve regurgitation by computational mechanics methods", 42nd Panhellenic Congress of Cardiology, 20-23 October 2021, Athens Greece.
  106. D. A. Exarchos; A. D. Sima; I. Ananiadis; P. A. Dalla; I. Tragazikis; T. Kordatou; S. Farmaki; A. Gontzamanis; V. Kechagias; L. Kechagias; **C. David**; T. E. Matikas, "Development and characterization of environmentally friendly multifunctional protective coatings", Proc. SPIE 12049, NDE 4.0, Predictive Maintenance, and Communication and Energy Systems in a Globally Networked World, 120490A (18 April 2022); doi: 10.1117/12.2614989

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108. Bouzakis K.-D., Vidakis N., Mitsi S, Lontos A., **David K.**: Enhancement of Machine Tool Spindle Performance Through Hybrid Bearings with Low Temperature PVD Coated Rings. International Conference on Metallurgical Coatings and Thin Films, April 10-14, 2000, San Diego, California, USA, pp. 69.
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110. O. Knotek, K. Bouzakis, **K. David**, A. Lontos, N. Michailidis, A. Siganos, T. Leyendecker, G. Erkens: Control of adhesion and structure of PVD-wear resistant coatings by an improved impact tester. "PSE 2000" 7th International Conference on Plasma Surface Engineering, Deutsche Gesellschaft für Galvano- und Oberflächentechnik e.V., 17-21 September 2000, Garmisch-Partenkirchen Germany, pp. 27.
111. K. D. Bouzakis, **K. David**, A. Siganos, T. Leyendecker, G. Erkens: Investigation of the fatigue failure progress of PVD elastoplastic coatings with various roughness during the impact testing. Proceedings of "ICMCTF 2001", International Conference on Metallurgical Coatings and Thin Films, pp. 116, 30 April – 4 May 2001 San Diego California, USA, pp. 116.

112. K. D. Bouzakis, A. Lontos, **K. David**, V. Kechagias: Creep behavior prediction and optimum design of plasma sprayed coatings with intermediate bonding layer. Proceedings of "ICMCTF 2001", International Conference on Metallurgical Coatings and Thin Films. 30 April – 4 May 2001 San Diego California, USA.
113. Bouzakis K.-D., Lontos A., **David K.**, Maliaris G.: An evaluation software of the impact test results to quantify the creep behaviour of monolayer thick plasma sprayed coatings. International Conference on Metallurgical Coatings and Thin Films, San Diego, USA, April 30, 2001, pp. 74.
114. **C. David**, K. Anthymidis, M. Athanasiou and P. Gotsis, "Impact fatigue failure modes of HVOF coatings", Seventh International ASTM/ESIS Symposium on Fatigue and Fracture (36th ASTM National Symposium on Fatigue and Fracture Mechanics), November 14-16, 2007, Tampa, Florida, USA.

#### **Papers in Proceedings of National Conferences**

115. K. Bouzakis, N. Michailidis, A. Lontos, **K. David**, N. Vidakis: Thin Hard Coatings fatigue prediction and typical applications in cutting tools and machine elements. Proceedings of 5<sup>th</sup> EEDM Conference "Machine Tools - Manufacturing Processes", 2-3 December 1999, Thessaloniki, pp. 3-22 and 395-396.
116. K. Bouzakis, **K. David**, I. Tsionas, I. Dardamanis, E. Kiriakidis, X. Danatskos: Modeling information needs of natural gas distribution agency (NGDA) with the use of geographical information systems. Proceedings of 5<sup>th</sup> EEDM Conference "Machine Tools - Manufacturing Processes", 2-3 December 1999, Thessaloniki, pp. 59-75 and 387-388.
117. K. Bouzakis, **K. David**, N. Vidakis: Prediction of the fatigue performance of coated systems through an advanced impact tester and the software supported evaluation of the experimental data. Proceedings of 5<sup>th</sup> EEDM Conference "Machine Tools - Manufacturing Processes", 2-3 December 1999, Thessaloniki, pp. 293-303 and 431-432.
118. K. Bouzakis, A. Lontos, N. Vidakis, **K. David**, V. Kechagias: Determination of mechanical properties of thick coatings produced by the plasma spray method. 5th EEDM Conference "Machine Tools - Manufacturing Processes", 2-3 December 1999, Thessaloniki, pp. 275-289 and 429-430.
119. Κεχαγιάς Β., **Δαυίδ Κ.** : «Χαρακτηρισμός και αντιτριβικές ιδιότητες βαθμωτών δομών σκληροεπιφανειακών αναγομώσεων σε ωστενιτικό χρωμιούχο χυτοχάλυβα υψηλού άνθρακα», 2<sup>ο</sup> Πανελλήνιο Συνέδριο Μεταλλικών Υλικών, ΕΜΠ, 25-26 Νοεμβρίου 2004, σελ. 101-106.
120. Λ. Θεοδωρίδου, **Κ. Δαυίδ** : «Διασυνοριακή Συνεργασία Ακαδημαϊκών Βιβλιοθηκών: Σέρρες-Φιλιππούπολη», Πρακτικά 16<sup>ου</sup> Πανελληνίου Συνεδρίου Ακαδημαϊκών Βιβλιοθηκών, Πειραιάς, 1-3 Οκτωβρίου 2007.σελ. 270-280.
121. Δ. Μισρηλής, Ε. Δημητριάδης, Γ. Μαρτινόπουλος, Δ. Σαγρής, **Κ. Δαυίδ**, Υπολογιστική μοντελοποίηση ροής και μετάδοσης θερμότητας στον δέκτη παραβολικού συγκεντρωτικού ηλιακού συλλέκτη, 9η Επιστημονική Συνάντηση Πανελλήνιο Συνέδριο για τα Φαινόμενα Μηχανικής Ρευστών, ΡΟΗ 2014, 12-13 Δεκ. 2014, Αθήνα, 2014.

## 7. ACADEMIC ACTIVITIES

Undergraduate courses in the Mechanical Engineering Department, International Hellenic University

- Machine Tools
- Metal Forming
- Machining processes
- Production systems and Robotics
- Metrology
- CAD/CAM/CAE
- Vibrations and Machine Dynamics
- Materials testing

Graduate Programme (Msc.) “Renewable Energy Systems: Design Development & Optimization”, Mechanical Engineering Department, International Hellenic University

- Advanced Materials
- Computational Mechanics
- Engineering Economics and Cost Analysis

Graduate Programme (Msc.) “Biomedical Engineering”, Mechanical Engineering Department, University of Western Macedonia, Greece

- Computed Tomography in the frame of the course " Biomedical Signal & Image Processing & Modeling"

### 2012 SUMMER SCHOOL IN ADVANCED COMPOSITE MATERIALS

International Institute for Multifunctional Materials for Energy Conversion (IIMEC)  
Serres, Greece, July, 2nd – 6th, 2012

- Damage Mechanics of Composite Materials
- Fatigue of Composite Materials

Member of PhD committees:

- International Hellenic University, Dept. of Mechanical Engineering (2021)
- Technical University of Crete, Dept. of Production Engineering & Management (2021)
- University of Ioannina, Dept. of Materials Science & Engineering (2019)
- Democritus University of Thrace, Dept. of Production & Management Engineering (2018)
- Technical University of Crete, Dept. of Production Engineering & Management (2015)

### DISTINCTION WITH STUDENTS' GROUPS

TEICM RACING TEAM 2017

<https://www.facebook.com/teicmracingteam/>

ROBOSER 2012

<http://teachers.teicm.gr/david/node/49>

## **8. BOOKS**

- Physics, Mechanics & Electromagnetism, Tziolas Publishers, Thessaloniki 2019, ISBN: 978-960-418-837-6
- Computed Aided Design, ION Publishers, Athens 2006, ISBN: 978-960-411-565-5

## **9. PARTICIPATION IN SCIENTIFIC COMMITTEES**

- Member of the European Group of Territorial Cooperation H.E.L.I.C.A.S. (2017-2022)
- Member of the Committee for the Evaluation of Study Programmes of Higher Education Institutions, Quality Assurance and Accreditation Agency of Cyprus (2018-2022)
- Member of Evaluation Committees of Research Projects, General Secretariat for Research and Technology GSRT (2014-2015)
- Research Project Evaluator, Ministry of Education (2004)

## **10. PARTICIPATION IN PROFESSIONAL ACTIVITIES**

- Member of Society of German Engineers (Verein Deutscher Ingenieure, VDI), 1990
- Member of German Production Engineering Association of VDI, 2000
- Member of Greek Engineers Chamber (TEE), 1996
- Member of Association of Mechanical and Electrical Engineers of Northern Greece, 1996
- Member of the Hellenic Metallurgical Society, 2000
- Member of the Hellenic Society of Bioengineering (HSB), 2015