

CURRICULUM VITAE

Personal Data

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Birth Date/Place December 23, 1959, Athens, Greece

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Education

June 1988 **Ph.D.** in Metallurgy, Department of Materials Science and Engineering, Massachusetts Institute of Technology (**MIT**), USA.
Thesis: "*Dispersed Phase Transformation Toughening in Ultrahigh-Strength Steels*".

June 1985 **M.Sc.** in Metallurgy, Department of Materials Science and Engineering, Massachusetts Institute of Technology (**MIT**), USA.
Thesis: "*Heat Flow and Material Degradation During Laser Metal Forming*".

June 1985 **M.Sc.** in Naval Architecture and Marine Engineering, Department of Ocean Engineering, Massachusetts Institute of Technology (**MIT**), USA.

September 1982 **Diploma.** in Mechanical Engineering, School of Engineering, Aristotle University of Thessaloniki, Greece.

Professional Record

Sept.1983-May 1985 **MIT** : Research Assistant, Department of Ocean Engineering, Welding Group.

June1985-May 1988 **MIT** : Research Assistant, Department of Materials Science and Engineering. Member of the Steel Research Group (SRG).

June 1988-June 1989 **Hellenic Shipyards Co.** : Consulting Engineer to the Hellenic Navy on Welding Quality Control during the Construction of New Naval Vessels (Military Service).

July 1989-Nov.1992 **MIRTEC S.A.**: Head of the Physical Metallurgy & Advanced Materials Division. Supervision of R&D of the Company.

Nov.1992-present **University of Thessaly** : Professor of Physical Metallurgy in the Department of Mechanical Engineering. Director of the Laboratory of Materials (LoM)

September 2017-present **Khalifa University of Science and Technology**: Professor, Department of Mechanical Engineering (sabbatical leave from University of Thessaly)

Professional Activities

- Evaluator/Expert of the BRITE/EURAM Programme, Brussels 1990.
- Evaluator/Expert of the Greek Secretariat of Research and Technology in several national R&D, Innovation and Technology Transfer projects.
- Evaluator/Expert of the European Community of Steel and Coal (ECSC), Brussels, 1992-2000
- National Representative to the COST 507 Programme Management Committee on the Development of Light Alloys, 1989-1994. Coordinator of Thermophysical Properties Group.
- Member of the Executive Committee on Special and Alloy Steels (F3) of the European Community of Steel and Coal (ECSC), 1992-2000.
- Member of the European Council of the American Society of Metals (ASM), 1991-2000.
- Member of the Metals, Minerals & Materials Society (TMS/AIME).
- Member of the Board of Directors of Ceramics and Refractories Company (Cereco S.A).
- Member of the Board of Directors of Thessalia Gas Company (2000-2002)
- Vice President of the Board of Directors of the Metallurgical Industrial Research and Technology Center MIRTEC (2016-2017)
- Founder and 1st President of the Hellenic Metallurgical Society (2000-2004)
- Chairman, Department of Mechanical Engineering, Univ. of Thessaly (2001-2003)
- Evaluator/Expert, Research Fund for Steel and Coal (RFCS), Brussels, 2011, 2012, 2015
- Evaluator/Expert, Horizon 2020, Brussels, 2016, 2017, 2018
- Visiting Scientist, RWTH-Aachen, Institute of Ferrous Metallurgy, June 2012
- Developer, Alloyneering technologies, www.alloyneering.com (2015-present)
- Consultant to Motor Oil Hellas (MOH) and Hellenic Petroleum (HELPE) Oil Refineries (1995-present)

Reviewer in scientific journals

Acta Materialia (Elsevier), J. Alloys and Compounds (Elsevier), Philosophical Magazine (Taylor&Francis), Thin Solid Films (Elsevier), Steel Research International (Wiley), Journal of Materials Processing Technology (Elsevier), Journal of Materials Research, (Materials Research Society), Materials Characterization (Elsevier), Mechanics of Advanced Materials and Structures (Taylor and Francis), International Journal of Materials Research (Deutsche Gesellschaft fuer Materialkunde), Aerospace Science and Technology (Elsevier), Theoretical and Applied Fracture Mechanics (Elsevier), Materials Chemistry and Physics (Elsevier), Computational Materials Science (Elsevier), Int. Journal of Mechanical Sciences (Elsevier), International Journal of Minerals, Metallurgy and Materials (Springer), Materials and Design (Elsevier), Materials Science and Engineering A (Elsevier), Materials Letters (Elsevier), Renewable Energy (Elsevier), Journal of Materials Engineering and Performance (ASM), Advanced Engineering Materials (Wiley), Applied Physics A-Materials Science and Processing (Springer), Materials Science and Technology (Taylor and Francis).

Member of Editorial Board:

- The Open Corrosion Journal
- International Journal of Metallurgical and Materials Engineering

Guest Editor:

- Steel Research International (Wiley), 2004, TRIP steels: correlation between microstructure and properties
- Materials (MDPI), 2018, Formation and behavior of metastable austenite in advanced high-strength steels
- Metals (MDPI), 2019, Advances in Physical Metallurgy (with Prof. Ulrich Prahl, Freiberg University, Germany)

Teaching Activities

At University of Thessaly:

- Physical Metallurgy
- Science and Technology of Welding
- Advanced Physical Metallurgy (graduate school)
- Mechanisms of Deformation and Fracture of Metallic Materials (graduate school)

Earned the *Departmental Best Teaching Award* for the years 2007, 2008, 2009, 2011, 2014 and 2015.

At Khalifa University of Science and Technology (2017-2018):

- MECH 495 Physical Metallurgy
- MECH 422 Fatigue and Fracture Analysis
- MEEN 631 Fatigue and Fracture of Engineering Materials (graduate course)

Ph.D thesis supervision

- Development of Ceramic Coatings with Laser Ablation Deposition (I. Zergioti, 1997)
- Surface Laser Transformation Hardening and Laser Carburizing of Engineering Steels (A. Katsamas, 2001)
- Modelling of Dispersed-Phase Transformation Plasticity in Low-Alloy TRIP Steels (A. Vasilakos, 2001)
- Simulation of microstructural evolution in the HAZ of 6xxx Aluminium Alloy Laser Welds (A. Zervaki, 2004)
- Corrosion and Hydrogen Embrittlement in Aircraft Aluminum Alloys (E. Kamoutsi, 2004)
- Simulation of the Extrusion and Heat Treatment of Hard Aluminum Alloys (S. Samaras, 2007)
- Simulation and Design of the Homogenization Process of Extrudable Al-Mg-Si Alloys (P. Sarafoglou, 2016)
- Design of the Thermomechanical Control process of HSLA Steels (M. Tzini, in progress)
- Computational design of Advanced Medium-Mn Steels (I.S. Aristeidakis, in progress)

Research Interests

Structure-Processing-Properties-Performance interactions in metallic materials. Application of computational alloy thermodynamics and kinetics in alloy design, process design and simulation of heat treatments and welding processes. Microsegregation, homogenization and strengthening of Al-alloys. TRIP steels and Medium-Mn steels: solute partitioning, austenite stabilization, constitutive modeling, fracture and fatigue. Process design of HSLA steels. Hydrogen trapping and embrittlement in high-strength aluminium alloys. Mechanisms of Deformation and Fracture of metallic alloys.

Developer of the ALLOYNEERING concept for the design of materials and processing (www.alloyneering.com).

Research Projects

[1] *Optimization of Microstructure in Multiphase Steels Containing Retained Austenite /Control and Exploitation of the Bake Hardening Effect in Multiphase High-Strength Steels*(2000-2006). Funding organization: European Community of Steel and Coal (ECSC). Partners: Steel Companies (Thyssen Krupp Stahl, Voest Alpine, Arcelor Group), Universities (RWTH-Aachen, Univ. Ghent). Research is focused in developing a new class of high strength high-formability steel sheet for automotive applications. These new TRIP steels are based on the strain-induced martensitic transformation of retained austenite (transformation plasticity). Topics investigated include: austenite stabilization, modeling and determination of austenite stability, modeling of strain-induced transformation, bake hardening effects, computational kinetics modeling of intercritical annealing.

[2] *Corrosion and Hydrogen Embrittlement of Aircraft Aluminium Alloys* (2002-2004). Funding organization: Airbus Consortium. Partners: Univ.Patras. The objective of the research is to investigate hydrogen uptake and trapping during corrosion of Al-alloys. Trap characterization is performed by combining thermal desorption measurements with microstructural characterization employing optical and scanning electron microscopy as well as AFM. The effect of hydrogen trapping is quantified with tensile, fracture toughness and fatigue testing.

[3] *Simulation of Extrusion and Heat treatment of Hard Aluminium Alloys*. Funding organization: GSRT. Partners: Exalco Aluminium Company. Research is focused in modeling the discrete steps in aluminium extrusion processing, i.e. casting and billet solidification, development of microsegregation, homogenization, extrusion, dissolution, and ageing. These models are linked and interdependent. A detailed microstructural characterization after every processing step supports the modeling effort.

[4] *Microstructural Evolution in the Heat Affected Zone of Aluminium Laser Welds* (1998-2004). Funding organization:GSRT. Research is focused on the application of computational thermodynamics and kinetics combined with FEM-based thermal analysis for modeling of dissolution, precipitation and coarsening of strengthening phases during the ultra-rapid thermal cycle encountered in laser welding of high-strength aluminium alloys such as 6061-T6. The effect of process parameters is investigated in an effort to design efficient and reliable laser welding techniques for aircraft and automotive aluminium alloys.

[5] *Control and exploitation of the bake-hardening effect in multi-phase high-strength steels* (2002-2005). Funding Organization: European Community of Steel and Coal (ECSC). Partners: Steel Companies (Thyssen Krupp Stahl, Voest Alpine, Arcelor Group), Universities (RWTH-Aachen, Univ. Ghent). Research is focused on the investigation of further strength improvements in TRIP steels via the bake hardening effect. Modelling of carbon segregation in austenite during the bainitic transformation of TRIP steels. Modelling of retained austenite volume fraction vs bainite isothermal transformation time.

[6] *Aeronautical Application of Wrought Magnesium - AEROMAG (2005-2009)*. Funding organization: EU-STREP. Research is focused on the deformation, fracture and corrosion mechanisms of wrought Mg alloys. Partners: EADS-Airbus, Salzgitter, Magnesium Electron, Eurocopter, et al.

[7] *Design of Bainite in TRIP Steels (2007-2010)*. Funding Organization: EU-Research Fund for Steel and Coal (RFCS). Partners: Steel Companies (Thyssen Krupp Stahl, Voest Alpine), Universities (RWTH-Aachen, CEIT). Research is focused on the modeling of bainitic transformation for the design of alloy compositions and heat treatment processes that lead to austenite stabilization and optimize the mechanical performance of TRIP steels.

[8] *On-line optimization of production methodology of solar thermal systems – SUNLASER (2011-2013)*. Funding organization: GSRT. Partners: Prime Laser Technology, Cereteth, FORTH-IESL. Research is focused on the evaluation of the bimetallic Al-Cu laser welds used in the construction of advanced solar panels. Evaluation includes metallographic analysis of weld metal constitution and characterization of intermetallic compound distribution and correlation with mechanical properties.

[8] *Evaluation and Control of Rolling Contact Fatigue in Rail Steels - DECORAIL (2013-2015)*. Funding Organization: GSRT. Partners: Urban Rail Transports S.A. (STA.SY), Demokritos National center for scientific research. The program is focused on the evaluation of RCF damage in rail steels (crack initiation and propagation through the rails) and the evaluation of failure scenarios in order to develop a methodology for the total control of RCF in the system of Athens Metro.

[9] *Design Rules for Third Generation (3G) Advanced High Strength Steels – IKYDA (2014-2015)*. Funding Organizations: IKY and DADD. Partner: Institute for Ferrous Metallurgy, RWTH-Aachen. Research is focused on the development of new medium-Mn advanced high-strength steels with austenitic dispersions for transformation plasticity interactions. Computational thermodynamics and kinetics-based design of alloy compositions and heat treatments. Modelling of strain-induced martensitic transformations in dispersed systems.

[10] *Toolkit for the design of damage tolerant microstructures- TOOLKIT (2016-2019)*. Funding Organization: EU-Research Fund for Steel and Coal (RFCS). Partners: Steel Companies (Thyssen Krupp Stahl, OCAS, Korinth Pipeworks), Universities (RWTH-Aachen, University of Ghent). The project aims at developing microstructural configurations that provide the required properties for damage tolerance in dual phase and HSLA steels. Design of suitable processing parameters to achieve the tailored microstructures (in collaboration with Prof. N. Aravas).

[11] *Development of affordable integrated lightweight components from flexible 3G medium-Mn steels – LightChassis (2017-2020)*. Funding Organization: Research Fund for Steel and Coal (RFCS). Partners: Salzgitter Mannesmann Forschung, Autotech Engineering, RWTH-Aachen, Centro Ricerche FIAT, ISQ). The project aims to design and deliver chassis components made from novel 3rd generation advanced high-strength medium-Mn steels. Computational alloy design will be applied in order to determine optimum alloy compositions and process windows. The alloy will be produced by novel belt casting technology. The component design will include detailed forming and welding analysis.

[12] *Hydrogen Embrittlement in Aluminum Alloys (2018-2020)*. Funding Organization: Khalifa University of Science and Technology – Start-up program. The project aims to investigate the effect of aging treatment on corrosion, hydrogen uptake and trapping in high-strength 2xxx aluminum alloys.

[13] *Advanced Digital Additive Manufacturing (ADAM) Center of Excellence (2019-2022)*. Funding Organization: Khalifa University. Project: Design of the metal AM powder bed process. The project aims to develop simulation approaches within the ICME framework in order to accelerate the development of metallic AM products.

Consulting activities

Consulting services to Motor Oil Hellas (MOH) and Hellenic Petroleum (HELPE) oil refineries in the field of failure analysis, corrosion control and creep. Over 250 contracts in the past 20 years. Studies included: Localized corrosion, stress corrosion cracking, hydrogen embrittlement, hydrogen blistering, sulfide stress cracking, high-temperature hydrogen attack, polythionic stress cracking, carburization, high-temperature sulfidation corrosion, metal dusting, H₂S corrosion and cracking, corrosion fatigue, creep and creep fracture, brittle fracture, fatigue cracking, weld cracking. Materials studied included: Carbon steels, pipeline steels API X70, X80, Austenitic stainless steels 304, 316, 321, 347, austenitic duplex stainless steels, Incoloy, hastelloy, inconel 718, monels, alloy 200, copper alloys. Equipment studied include: Pressure vessels, piping, boilers, furnace tubing, heaters, reactors, heat exchangers, gasifiers, pumps, vanes, valves, hydrogen reformers and pigtails, compressors.

Consulting with failure analysis projects to the following companies: Aluminium of Greece (AoG), Athens Subway System, Frigoglass, Exalco, Shielman, Sidenor, METKA, Lafarge cement company.

Patents

E. Hontzopoulos and G.N. Haidemenopoulos, Layout and methodology for laser bulk heat treatment of thin metal sheets or strips for controlling the final mass properties of the material (Patent No.GR1008658 – IPC: C21D 9/46, Industrial Property Organization of Greece, 18/1/2016).

Publications

Textbooks

1. G.N. Haidemenopoulos, Physical Metallurgy, in Greek, Tzliolas Publishing, 2007, ISBN 960-418-117-3.
2. G.N. Haidemenopoulos, Introduction to Welding, in Greek, Tzliolas Publishing, 2010, ISBN 978-960-418-258-9.
3. D.I. Pantelis, V.J. Papazoglou, G.N. Haidemenopoulos, Science and Technology of Welding, in Greek, Tzliolas Publishing, 2011, ISBN 978-960-418-658-7
4. G.N. Haidemenopoulos, Physical Metallurgy – Principles and Design, in English, CRC Press, Taylor & Francis, USA, 2018, ISBN 978-1-138-62768-0.

Book Chapters

1. A. Prince, G. Davignon, M. Giovannini, J. Groebner, G.N. Haidemenopoulos and H. Seifert, Magnesium-Praseodymium-Zinc System, Ternary Alloys, Vol.18, VCH Verlagsgesellschaft, Weinheim - MSI Stuttgart, Germany, ISBN 3-932120-41-8, 2001.
2. G. Davignon, M. Giovannini, J. Groebner, G.N. Haidemenopoulos and H. Seifert, Magnesium-Neodymium-Zinc System, Ternary Alloys, Vol.19, VCH Verlagsgesellschaft, Weinheim - MSI Stuttgart, Germany, ISBN 3-932120-41-8, 2001.
3. J.R. Kissell, S. Pantelakis and G.N. Haidemenopoulos, Aluminum and Aluminum Alloys, Chapter 9 in The Handbook of Advanced Materials, ed. J.K. Wessel, ISBN 0-471-45475-3, Wiley Interscience, Hoboken, New Jersey, USA, p.321-463, 2004.
4. A.D. Zervaki and G.N. Haidemenopoulos, Laser Welding of 6xxx Aluminum Alloys, in Materials for Transportation Technology, Vol.1 (ed P.J. Winkler) Wiley-VCH Verlag GmbH, Weinheim, Germany, pp.141-149, 2005.
5. A.N. Vasilakos and G.N. Haidemenopoulos, The stability of Retained Austenite in Low-Alloy TRIP Steels, in Steel and Materials for Power Plants, Vol.7 (eds. P. Neumann, D. Allen, and E. Teukhoff) Wiley-VCH Verlag GmbH, Weinheim, Germany, pp.213-218, 2006.
6. G.N. Haidemenopoulos, A. Katsamas and A. Aravas, Multiscaling Effects in TRIP Steels, in Multiscaling in Molecular and Continuum Mechanics: Interaction of Time and Size from Macro to Nano, ed. G. Sih, Springer, 2007.
7. S. Pantelakis, A. Kermanidis, G.A. Papadimitriou, G.N. Haidemenopoulos, A. Zervaki, Fatigue performance of 2139 aluminum alloy laser beam welds following exposure to salt spray environment, in Particle and Continuum Aspects of Mesomechanics (eds G. C. Sih, M. Nait-Abdelaziz and T. Vu-Khnanh), ISTE, London, UK, pp.603-611, 2010.
8. G.N. Haidemenopoulos and A. Katsamas, Carburizing: Laser Beam, Encyclopedia of Iron, Steel and Their Alloys, Rafael Colas and George Totten (editors), Taylor and Francis, New York, USA, p.631-642, 2016
9. G.N. Haidemenopoulos and H. Kamoutsi, Corrosion-induced Hydrogen Embrittlement in Aluminum Alloy 2024, Encyclopedia of Aluminium and Its Alloys, George Totten and Ollaf Kessler (editors), Taylor and Francis, ISBN 9781466510807, New York, USA, 2018.
10. G.N. Haidemenopoulos and P.I. Sarafoglou, Extrudable Al-Si-Mg Alloys: Simulation of Microsegregation and Homogenization, Encyclopedia of Aluminium and Its Alloys, George Totten and Ollaf Kessler (editors), Taylor and Francis, ISBN 9781466510807, New York, USA, 2018.

A. Papers in Refereed Journals

- A1. M. Grujicic and G.N. Haidemenopoulos, A Treatment of Paraequilibrium Thermodynamics Using the Thermocalc Software and Database, CALPHAD, Vol.12, No.2, p.187-192, 1988.
- A2. G.N. Haidemenopoulos, M. Grujicic, G.B. Olson, and Morris Cohen, Transformation Microyielding of Retained Austenite, Acta Metallurgica, 37, No.6, p.1677-1682, 1989.
- A3. G.N. Haidemenopoulos, G.B. Olson, Morris Cohen, and K. Tsuzaki, Transformation Plasticity of Retained Austenite in Stage-I Tempered Martensitic Steels, Scripta Metallurgica, Vol.23, p.297-212, 1989.

- A4. G.N. Haidemenopoulos, M. Grujicic, G.B. Olson, and Morris Cohen, On the Optimization of Precipitated Austenite for the Transformation Toughening of Steels, CALPHAD, Vol.13, No.3, p.207-216, 1989.
- A5. E. Hontzopoulos, D. Tsipas, and G.N. Haidemenopoulos, Excimer Laser Assisted Alloying of Hf14 Layers, Laser Magazin of Optronics Applications and Innovation, Vol.2, p.35-38, 1990.
- A6. A.G. Mamalis and G.N. Haidemenopoulos, Aspects of Ductility, Toughness and Formability of Steel Sheet in Relation to Transformation Plasticity, Journal of Materials Processing Technology, Vol.30, p.211-230, 1992.
- A7. J. McIntosh, G.N. Haidemenopoulos, A.D. Zervaki, K. Papadimitriou, A. Manousaki, I. Zergioti, and E. Hontzopoulos, Excimer Laser Used as a Materials Characterization Tool: Sulphide Inclusion Printing in Steel, Laser Chemistry, Vol.13, p.121-128, 1993.
- A8. G.N. Haidemenopoulos, M. Grujicic, G.B. Olson, and M. Cohen, Thermodynamics-Based Alloy Design Criteria for Austenite Stabilization in the Fe-Ni-Co System, Journal of Alloys and Compounds, Vol.220, p.142-147, 1995.
- A9. I. Zergioti, A.D. Zervaki, A. Hatzia Apostolou, G.N. Haidemenopoulos, and E. Hontzopoulos, Deposition of Refractory compounds with LCVD, Journal of Optical and Quantum Electronics, Vol.27, p.1377-1383, 1995.
- A10. G.N. Haidemenopoulos and K. Papadimitriou, Retained Austenite and Mechanical Properties in Bainite Transformed Low-alloy Steels, Steel Research, Vol.66, No.10, p.433-438, 1995.
- A11. I. Zergioti, A. Hatzia Apostolou, E. Hontzopoulos, A.D. Zervaki and G.N. Haidemenopoulos, Pyrolytic Laser-Based Chemical Vapor Deposition of Titanium Carbide Coatings, Thin Solid Films, 271, p.96-100, 1995.
- A12. G.N. Haidemenopoulos, Austenite Stabilization from Direct Cementite Conversion in Low-Alloy Steels, Steel Research, 67, No.3, p.93-99, 1996 (Nominated for Best Paper Award 1996 in Steel Research)
- A13. A. Vasilakos, G.N. Haidemenopoulos and P. Polatidis, Thermodynamic Analysis and Mechanical Properties of Cast Aluminium Alloy A357 with Cu, Ag and Sm Additions, METALL 50, No.9, p.556-560, 1996.
- A14. G.N. Haidemenopoulos and A. Vasilakos, Modelling of Austenite Stability in Low-Alloy Triple-Phase Steels, Steel Research, 67, No.11, p. 513-519, 1996.
- A15. S.G. Pantelakis, T.B. Keramidis, and G.N. Haidemenopoulos, Mechanical Behavior of Al-Alloy 2024 subjected to Paint Stripping by Laser Radiation and Plasma Etching, J. Theoretical and Applied Fracture Mechanics, 25, p.139-146, 1996.
- A16. G.N. Haidemenopoulos and A. Vasilakos, On the Thermodynamic Stability of Retained Austenite in 4340 Steel, J. of Alloys and Compounds, 247, p.128-133, 1997
- A17. I. Zergioti and G.N. Haidemenopoulos, On the Nanocrystalline Structure of TiC and TiB₂ Coatings deposited by Laser Ablation, Nanostructured Materials, Vol.8, No.1, p.55-59, 1997.
- A18. I. Zergioti, C. Fotakis and G.N. Haidemenopoulos, Growth of TiB₂ and TiC Coatings using Pulsed Laser Deposition, Thin Solid Films, 303, p.39-46, 1997.
- A19. A. Katsamas, A.D. Zervaki, and G.N. Haidemenopoulos, Laser Surface Transformation Hardening of Hypoeutectoid Ck-60 Steel, Steel Research, 68, No.3, p.119-124, 1997.
- A20. H. Flandorfer, J. Grobner, A. Stamou, N. Hasiotis G.N. Haidemenopoulos, P. Rogl, R. Ferro. and G. Effenberg, Experimental Investigation and Thermodynamic Calculation of the Ternary Mn-Y-Zr system. Z.Metallkunde, 88, p.529-538, 1997.
- A21. G.N. Haidemenopoulos, N. Hasiotis, G. Papapolymerou, and V. Bontozoglou, Hydrogen Absorption into Aluminum Alloy 2024-T3 During Exfoliation and Alternate Immersion Testing., Corrosion, Vol.54, No.1, p.73-78, 1998.
- A22. I. Zergioti, M. Velegrakis and G.N. Haidemenopoulos, Diagnostics of the Ions Produced by Laser Ablation of TiC and TiB₂, Appl. Surf. Sci., 126, p.92-98, 1998.
- A23. S. Pantelakis and G.N. Haidemenopoulos, Effect of Novel Paint Removal Processes on the Fatigue Behavior of Aluminum Alloy 2024, Surface and Coatings Technology, 106, p.198-204, 1998.
- A24. A.I. Katsamas and G.N. Haidemenopoulos, Laser Transformation Hardening of Ck-45 and Ck-60 Plain Carbon Steels, Journal of Balkan Trib. Assoc., Vol.4, No.3, 1998.
- A25. A.I. Katsamas and G.N. Haidemenopoulos, Surface Hardening of Low Alloy 15CrNi6 Steel by CO₂ Laser Beam, Surface & Coatings Technology, 115, p.249-255, 1999
- A26. E. Charitidou, G. Papapolymerou, G.N. Haidemenopoulos, N. Hasiotis, V. Bontozoglou, Characterization of Trapped Hydrogen in Exfoliation Corroded Aluminium Alloy 2024, Scripta Materialia, Vol. 41, No.12, p.1327-1332, 1999
- A27. A.N. Vasilakos, K. Papamantellos, G.N. Haidemenopoulos and W. Bleck, Experimental determination of the Stability of Retained Austenite in Low-Alloy TRIP Steels, Steel Research, Vol.70, No.11, pp.466-471, 1999.
- A28. I. Zergioti, G.N. Haidemenopoulos, C. Fotakis, Nanocrystalline Growth and Diagnostics of TiC and TiB₂ Hard Coatings by Pulsed Laser Deposition, Applied Physics A, No.7, pp. S427-S431, 2000.
- A29. A.I. Katsamas, A.N. Vasilakos and G.N. Haidemenopoulos, Simulation of Intercritical Annealing in Low-alloy TRIP Steels, Steel Research, 71, No.9, pp.351-356, 2000.
- A30. A.K. Katsamas and G.N. Haidemenopoulos, Laser Carburizing of Low Alloy Steels, Surface and Coatings Technology, 139, pp.183-191, 2001

- A31. G.N. Haidemenopoulos, Coupled Thermodynamic / Kinetic Analysis of Diffusional Transformations During Laser Hardening and Laser Welding, Journal of Alloys and Compounds, 320, pp.302-307, 2001.
- A32. A.N. Vasilakos, J. Ohlert, K. Giasla, G.N. Haidemenopoulos, W. Bleck, Low Alloy TRIP Steels: a correlation between mechanical properties and retained austenite stability, Steel Research, 73, No.6-7, pp.249-252, 2002
- A33. I. Papatriantafillou, N. Aravas and G.N. Haidemenopoulos, Finite Element Modeling of TRIP Steels, Steel Research Int., 75, No.11, 2004, p.730-736
- A34. A.I. Katsamas, G.N. Haidemenopoulos and N. Aravas, Transformations Modeling in TRIP Steels, Steel Research Int., 75 No.11, 2004, 737-743
- A35. A.I. Katsamas, G.N. Haidemenopoulos, A.D. Zervaki, I. Melas, Stress Corrosion Cracking of a Monel 400 Tube, Journal of Failure Analysis and Prevention, Vol.4, No.6, pp.39-45, 2004.
- A36. S. Pantelakis, P.V. Petroyiannis and G.N. Haidemenopoulos, Investigation on the Protective Role of Local Al Cladding against Corrosion Damage and Hydrogen Embrittlement of 2024 Al alloy Specimens, Theoretical & Applied Fracture Mechanics, Vol.44, pp.70-81, 2005
- A37. S. Pantelakis, P.V. Petroyiannis, E. Kamoutsi, V. Bontozoglou and G.N. Haidemenopoulos, Evidence on the Corrosion-induced Hydrogen Embrittlement of 2024 Al-alloy, Fatigue and Fracture of Engineering Materials and Structures, Vol.28, pp.565-574, 2005
- A38. H. Kamoutsi, G.N. Haidemenopoulos, V. Bontozoglou and S. Pantelakis, Corrosion-Induced Hydrogen Embrittlement in Aluminum Alloy 2024, Corrosion Science, 48, pp.1209-1224, 2006
- A39. I. Papatriantafillou, M. Agoras, N. Aravas and G.N. Haidemenopoulos, Constitutive Modeling and Finite Element Methods for TRIP Steels, Computer Methods in Applied Mechanics & Engineering, 195, pp.5094-5114, 2006
- A40. G.N. Haidemenopoulos, A. Zervaki, P. Terezakis, J. Tzanis, A.E. Giannakopoulos, M.K. Kotouzas, Investigation of Rolling Contact Fatigue Cracks in a Grade 900A Rail Steel of a Metro Track, Fatigue and Fracture of Engineering Materials and Structures, , Vol.29 , pp. 887-900, 2006
- A41. G.N. Haidemenopoulos, A.I. Katsamas, N. Aravas, Stability and Constitutive Modelling in Multiphase TRIP Steels (invited paper), Steel Research Int., 77, No.9-10, pp.720-726, 2006
- A42. A.D. Zervaki & G.N. Haidemenopoulos, Computational Kinetics Simulation of the Dissolution and Coarsening in the HAZ during Laser Welding of 6061-T6 Al-alloy, Welding Journal, Vol.86, pp. 211s-221s, 2007
- A43. S. Samaras and G.N. Haidemenopoulos, Modelling of Segregation and Homogenization of 6061 Extrudable Al-Alloy, Journal of Materials Processing Technology, Vol.194, pp.63-73, 2007
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- B70. G.N. Haidemenopoulos, A.D. Zervaki, I. Altanis, P.Dimitriadis, High-temperature corrosion of refractory systems used in fuel catalytic converter units in oil refineries, EUROMAT 2017, Thessaloniki, Greece, 17-22 September 2017.
- B71. P.I. Sarafoglou, G.N. Haidemenopoulos, Simulation of phase transformations during the homogenization of a 6082 extrudable Al-alloy using computational thermodynamics and kinetics, EUROMAT 2017, Thessaloniki, Greece, 17-22 September 2017.
- B72. H. Kamoutsi, P. Floratos, C. Karantonidis, G.N. Haidemenopoulos, Effect of artificial aging on the corrosion-induced hydrogen trapping in Al-alloy 2024-T3, EUROMAT 2017, Thessaloniki, Greece, 17-22 September 2017.
- B73. G.N. Haidemenopoulos, G. Constantinides, I. Bellas, D. Krizan, H. Kamoutsi, Strain-induced transformation in low-alloy TRIP steels: characterization by magnetic force microscopy, EUROMAT 2017, Thessaloniki, Greece, 17-22 September 2017.
- B74. G. Aktas Celik, S.H. Atapek, S. Polat, G.N. Haidemenopoulos, Characterization of the high-temperature oxidation behavior of SiMo cast iron used as exhaust manifolds, EUROMAT 2017, Thessaloniki, Greece, 17-22 September 2017.
- B75. M.I.T. Tzini and G.N. Haidemenopoulos, Phase-field simulation of microstructure evolution of austenite during multipass hot rolling of HSLA steel, EUROMAT 2017, Thessaloniki, Greece, 17-22 September 2017.
- B76. A.D. Zervaki, H. Kamoutsi, S.I. Alkhoori, K. Polychronopoulou, S. Jaffar, G.N. Haidemenopoulos, Metallographic assessment of creep in cast tubes of heat-resistant steels, 5th International Conference of Engineering Against Failure (ICEAF V), Chios Island, Greece, 20-22 June, 2018.
- B77. G.N. Haidemenopoulos, H.Kamoutsi, K. Polychronopoulou, P. Papageorgiou, I. Altanis, P. Dimitriadis, M. Stiakakis, Stress-oriented hydrogen induced cracking (SOHIC) in H₂S environments, 5th International Conference of Engineering Against Failure (ICEAF V), Chios Island, Greece, 20-22 June, 2018.
- B78. H. Kamoutsi, J.S. Aristeidakis and G.N. Haidemenopoulos, Simulation of intercritical annealing of dual-phase steels, MSE 2108 Congress, Symposium M08 on Integrated Computational Materials Engineering (ICME), 26-28 September 2018, Darmstadt, Germany.
- B79. H. Kamoutsi, K. Psyridis, I. Kalamvokas, G.N. Haidemenopoulos, Integrated modeling of the heat treatment of low-alloy TRIP steels, MSE 2108 Congress, Symposium M08 on Integrated Computational Materials Engineering (ICME), 26-28 September 2018, Darmstadt, Germany.
- B80. M.I.T. Tzini and G.N. Haidemenopoulos, Identification of the optimum processing routes of Nb-microalloyed steels using an integrated process chain model: Phase field and physically based models, MSE 2108 Congress, Symposium M08 on Integrated Computational Materials Engineering (ICME), 26-28 September 2018, Darmstadt, Germany.
- B81. J.S. Aristeidakis and G.N. Haidemenopoulos, Alloy design of medium-Mn steels based on computational thermodynamics, kinetics and multi-objective optimization, MSE 2108 Congress, Symposium M08 on Integrated Computational Materials Engineering (ICME), 26-28 September 2018, Darmstadt, Germany.
- B82. G. Aktas Celik, M.I.T. Tzini, S.H. Atapek, S. Polat, G.N. Haidemenopoulos, Computation of the Effect of Alloying Elements on the Physical Properties of SiMo ductile Cast Iron, 19th Intern. Metallurgy and Materials Congress (IMMC 2018), 25-27 October 2018, Instabul, Turkey.
- B83. G. Aktas Celik, M.I.T. Tzini, S.H. Atapek, S. Polat, G.N. Haidemenopoulos, Development of a Novel Ductile Cast Iron for Elevated Temperatures by Thermo-Calc Studies: Effect of Aluminum Content, 19th Intern. Metallurgy and Materials Congress (IMMC 2018), 25-27 October 2018, Instabul, Turkey.

- B84. I.S. Aristeidakis, G.N. Haidemenopoulos, Computational alloy design of medium-Mn steels, 2nd Annual Gulf Steel Show Conference – Oil and Gas, 26-28 March 2019, Abu Dhabi, UAE.
- B86. G. Aktaş Çelik, Ş. Polat, H. Atapek, M.I.T. Tzini, G. N. Haidemenopoulos Microstructural and thermal characterization of 3.2C-5Si-1W novel ductile cast iron, 4th Metallurgical and Materials Engineering Congress, 5-7 June, 2019, Belgrade, Serbia.
- B85. G. Aktaş Çelik, Ş. Polat, H. Atapek, M.I.T. Tzini, G. N. Haidemenopoulos, Thermodynamic modelling of 3C-6Si-1W-1Al ductile cast iron, 4th Metallurgical and Materials Engineering Congress, 5-7 June, 2019, Belgrade, Serbia.

Organization of Conferences and Workshops

- Organizing Committee of the COST 507 Seminar on New Light Alloys, Lueven, Belgium, 3-5 December 1991.
- Organization of International Workshop on the Assessment of Thermodynamic Data, Skiathos, Greece, 17-25 September 1994.
- Scientific and Organizing committee, Workshop on Thermophysical and Thermochemical Properties of Light Alloys, Vaals, Netherlands, 10-12 March 1997.
- Organizing and Scientific Committee, 1st Mechanics Conference, Volos, September 1999.
- Program Committee, THE Coatings Conference, Thessaloniki, 14-15 October 1999.
- Session Chairman, CALPHAD XXIX Conference, MIT, Cambridge, Massachusetts, USA, June 2000.
- Chairman of organizing committee of the 1st Hellenic Conference on Metallic Materials, Volos 29-30 November, 2001.
- International Scientific Advisory Committee, Int. Conference on TRIP-Aided High-Strength Ferrous Alloys, Ghent, Belgium, June 19-21, 2002
- Scientific Committee of the 1st Conference on the Advances in Mineral Resources Management and Environmental Geotechnology (AMIREG 2004), Chania, Crete, 7-9 June 2004.
- Scientific Committee of 6th Conference on Mesomechanics (MESO 2004), Patras, June 2004
- Session Organizer and Chairman on “Correlation between Microstructure and Properties of TRIP Steels”, 6th Conference on Mesomechanics (MESO 2004), Patras, June 2004
- Organizing and Scientific Committee of 2nd Hellenic Conference on Metallic Materials, Athens, November 2004
- Mini-symposium co-organizer (Hydrogen Embrittlement), 11th International Conference on Fracture (ICF11), Turin, Italy, March 20-25, 2005.
- Session Chairman, 2nd International Conference on Manufacturing Engineering (ICMEN), Thessaloniki, 4-7 October, 2005
- Session chairman, Aging Aerostructures, 16th European Conference on Fracture (ECF-16), Alexandroupolis, Greece, 3-7 July, 2006
- Session chairman, Multiscaling in Molecular and Continuum Mechanics- Scaling in Time and Size from Macro to Nano, 16th European Conference on Fracture (ECF-16), Alexandroupolis, Greece, 3-7 July, 2006
- Organizing and Scientific Committee of 3rd Hellenic Conference on Metallic Materials, Patras, November 2007
- Scientific Committee and Session Chairman, Int. Conference Against Fracture, ICEAF 2008, Patras, Greece, May 2008.
- Session Chairman, MSE Conference, DGM, Nurnberg, Germany, September, 2008
- Session Chairman, Int. Conference on Manufacturing Engineering (ICMEN 2008), Thessaloniki, October, 2008
- Organizing and Scientific Committee of 4th Hellenic Conference on Metallic Materials, Thessaloniki, November 2010
- Scientific Committee and Session Chairman, Int. Conference Against Fracture, ICEAF II, Mykonos, Greece, May 2011.
- Chairman, Organizing Committee, 5th Hellenic Conference on Metallic Materials, Volos, November 21-23, 2013
- Session chairman, 2nd International Conference on High Manganese Steel (HMnS 2014), Aachen, Germany, 31 August-4 September 2014.
- Scientific Committee and Session Chairman, 4th Int. Conference on Engineering Against Failure (ICEAF IV), Skiathos, Greece, 24-26 June, 2015.

- Scientific Committee of the 6th Hellenic Conference on Metallic Materials, University of Ioannina, December 7-9, 2016.
- Scientific Committee, Coordinator of Area B-Structural Materials, EUROMAT 2017.
- Co-organizer, Symposium on Integrated Computational Materials Engineering (ICME), MSE 2018 Congress, Darmstadt, September 26-28, 2018.
- Scientific Committee of the 7th Hellenic Conference on Metallic Materials, National Technical University of Athens, December 11-13, 2019.
- International Advisory Committee, 2nd Inter. Conference on processing and Characterization of Materials (ICPCM), Rourkela, India, December 12-14, 2019.

Invited/keynote lectures

- Effects of Dispersed Austenite on the Mechanical Properties of Ultrahigh-Strength Steels Brown University, 22 May 1987
- Dispersed-Phase Transformation Toughening in Ultrahigh-Strength Steels, AT & T Bell Labs, February 10, 1988
- Toughening of Ultrahigh-Strength Steels with Dispersed Austenite, Northwestern University, Evanston, Illinois, March 15, 1988.
- Dispersed-Phase Transformation Toughening in Ultrahigh-Strength Steels, GTE Labs, Waltham, MA, August 6, 1988
- Triple- Phase High Formability Steels, Northwestern University, Evanston, Ill., March 15, 1990.
- Dispersed-Phase Transformation Plasticity in Low-Alloy Steels, Northwestern University, Evanston, Illinois, February 2, 1991.
- Thermophysical Properties of Light Alloys, COST Management Committee, Amsterdam, June 21, 1990.
- Progress in Thermophysical Property Research in Light Alloys, COST Management Committee, Brussels, December 5, 1994.
- Thermodynamic Calculations in Alloy Design, University of Vienna, December 7, 1994
- Overview of the Development of a Database for Thermophysical Properties, Max Planck Institute für Metallforschung, Stuttgart, December 1995.
- Corrosion-induced hydrogen embrittlement of Al-alloys, Department of Materials Science, University of Ioannina, November 5, 2004.
- Materials at high temperatures, 4th international school on Fission Technology, University of Thessaly 1 April 15, 2005.
- Keynote Lecture: Exploitation of the TRIP effect for the development of formable, fracture and fatigue resistant steels for automotive applications, Int. Conference Against Fracture, University of Patras, Greece, May 2008.
- Keynote Lecture: Microstructures for Transformation Toughening in Multiphase Steels, Int. Conf. Engineering Against Fracture (ICEAF II), Mykonos, Greece, June 22-24, 2011
- Thermodynamics and kinetics-based alloy and process design, RWTH-Aachen, June 15, 2012
- Diffusive Phase Transformations, RWTH, Aachen, June 13, 2012
- Martensitic Transformations, RWTH, Aachen, June 20, 2012
- Computational Alloy Design, Masdar Institute, Abu Dhabi, UAE, September 19, 2017
- Computational design of alloys and processes, Khalifa University of Science and Technology, December 5, 2017.
- Simulation of heat treatment and design of aluminum alloys, Taweelah Aluminium Extrusion Company (TALEX), Abu Dhabi, UAE, September 4, 2018.