Curriculum Vitae

Maria-Ioanna T. Tzini

Personal Information

Birth Date/Place: October 23, 1993, Athens, Greece

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Education

2016-present

Ph.D. Student in Mechanical Engineering and Materials Science
Division of Mechanics, Materials and Manufacturing Processes, Laboratory of Materials, Department of Mechanical Engineering, University of Thessaly, Greece

Thesis: *Design of the Thermomechanical Control Process of High-Strength Low Alloy (HSLA) Steels*

Committee: Prof. G.N. Haidemenopoulos (Advisor), Prof. N. Aravas, Prof. S. Münstermann

Courses of interest:
Mechanical Behavior of Materials under Cyclic Loading, By Assistant Prof. A.T. Kermanidis, In progress
Materials for Energy Building, By Prof. G.N. Haidemenopoulos, Prof. N. Aravas and Assistant Prof. A.T. Kermanidis, In progress

2011-2016

Diploma in Mechanical Engineering, Integrated M.Sc. and B.Sc.
Division of Mechanics, Materials and Manufacturing Processes, Laboratory of Materials, Department of Mechanical Engineering, University of Thessaly, Greece, (Degree Grade: 7.95/10)

Thesis: *Cyclic Phase Transformations and Solute Partitioning in the Intercritical Range of a Medium-Mn Steel* (Grade: 10/10)

Committee: Prof. G.N. Haidemenopoulos (Advisor), Prof. N. Aravas, Assistant Prof. A.T. Kermanidis

Courses of interest:
Mechanisms of deformation, fracture and strengthening of metallic materials, By Prof. G.N. Haidemenopoulos, (Grade: 9/10)
Physical Metallurgy, By Prof. G.N. Haidemenopoulos, (Grade: 9/10)
Plasticity, By Prof. N. Aravas, (Grade: 10/10)
Continuum Mechanics, By Prof. N. Aravas, (Grade: 10/10)

Languages

Greek (Native), English (Certificate of Proficiency in English University of Michigan, ECPE)

Research Interests

Process and Alloy Design of Metals (HSLA, TRIP, Medium-Mn, Cast Iron Steels, Aluminum Alloys), Additive Manufacturing

Recrystallization and growth kinetics, Strain-induced precipitation, Strain-induced martensitic transformation, Solidification, Working processes

Computational Thermodynamic and Kinetics, Calphad Theory, Evolutionary Algorithms, Optimization and Machine Learning

Research Experience

2018-present — RFCS-Development of affordable integrated lightweight components from flexible 3G medium-Mn steels, European Commission
Funded by the EU and in collaboration with RWTH, Salzgitter Mannesmann Forschung, Gestamp Autotech Engineering, Centro Ricerche Fiat SCPA, Instituto De Soldadura e Qualidade

2016-present — RFCS-Toolkit for the design of damage tolerant microstructures, European Commission
Funded by the EU and in collaboration with RWTH, Ghent University, ThyssenKrupp Steel AG, OCAS, Corinth Pipe Works S.A.

2017 — Department of Mechanical Engineering, University of Thessaly, Development of a 6060 alloy with high extrudability – Aeolus Alloy
In collaboration with Aluminum of Greece (AoG), Mytilineos Industries

2017 — Department of Mechanical Engineering, University of Thessaly, Development of a 6063 alloy with high extrudability
In collaboration with Aluminum of Greece (AoG), Mytilineos Industries

Teaching Experience

Teaching assistance (laboratory classes, exercises) for the course of Physical Metallurgy, Graded assignments and exams, Student assistant and instructor for their diploma thesis, Science demonstrations at the Laboratory of Materials for high school students under the *Open Gates* project

Professional Skills

Metallography Analysis of Metals, Scanning Electron Microscopy, Mechanical Tests, Microhardness Tests, Thermal Processing, Welding, Failure Analysis

Phase Field Theory, Thermodynamics and Kinetics of Phase Transformations for Metals, Plasticity of Metals, Material Design and Optimization, Genetic Programming, Neural Network Modeling

Computational Skills

Thermo-Calc (Computational Alloy Thermodynamics), DICTRA (Computational Materials Kinetics), MICRESS (Phase-Field Modelling), TC-PRISMA (Precipitation Simulation Software), Matlab, Mathematica, Fortran, CES Material Selection Package

Design Models: AutoCAD, SolidWorks, Image Pro, Origin Pro, Photoshop

Internships

2015 — GALANOS S.A., Rebar Processing Machinery, Volos, Greece
2014 — ELVAL S.A.-ANOXAL, Hellenic Aluminum Industry, Oinofita, Greece

Papers in Refereed Journals

1. Maria-Ioanna T. Tzini, Despina A. Karamichailidou, and Gregory N. Haidemenopoulos, Grain Size Evolution during Multipass Hot-Rolling of C-Mn Steels: Comparison of Phase Field and Extended JMAK Modeling, Steel Research International, 2018, 1800223, pp. 1-13, DOI: 10.1002/srin.201800223.
2. Panagioata I. Sarafoglou, J.S. Aristeidakis, M.I.T. Tzini, G.N. Haidemenopoulos , Metallographic Index-Based Quantification of the Homogenization State in Extrudable Aluminum Alloys, Metals, MDPI, 2016, 6, 121, DOI:10.3390/met6050121.
3. Maria-Ioanna Tzini, Panagiota Sarafoglou, Andreas Stieben, Gregory N. Haidemenopoulos, Wolfgang Bleck, Austenite evolution and Solute Partitioning during Thermal Cycling in the Intercritical Range of a Medium-Mn Steel, Steel Research International, 2016, 87, DOI: 10.1002/srin.201600050.
4. P.I. Sarafoglou, M.I.T. Tzini, G.N. Haidemenopoulos, Simulation of Cyclic Transformations in the Intercritical Range of a 5Mn Steel, International Journal of Metallurgical and Materials Engineering, 2015, 1.2015.104, DOI: 10.15344/2455-2372/2015/104.

Conferences

1. M. I. T. Tzini, 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, accepted at the Materials Science and Engineering Congress, MSE 2018, Darmstadt, Germany, September, 2018.
2. Gülşah Aktaş Çelik, Maria-Ioanna T. Tzini, Şeyda Polat, Ş. Hakan Atapek, G. N. Haidemenopoulos, Development of a novel ductile cast iron for elevated temperatures by ThermoCalc studies: effect of aluminum content, accepted at the 19th International Metallurgy and Materials Congress, IMMC 2018, Istanbul, Turkey, October, 2018.
3. Gülşah Aktaş Çelik, Maria-Ioanna T. Tzini, Ş. Hakan Atapek, Şeyda Polat, Gregory N. Haidemenopoulos, Computation of the Effect of Alloying Elements on the Physical Properties of SiMo Ductile Cast Iron, accepted at the 19th International Metallurgy and Materials Congress, IMMC 2018, Istanbul, Turkey, October, 2018.
4. I. Papadioti, I. Bellas, M-I.T. Tzini, P.I. Christodoulou and N. Aravas, Non-linear Homogenization Theories with application to TRIP Steels, 9th GRACM, Chania, Crete, Greece, July, 2018.
5. M.I.T. Tzini and G.N Haidemenopoulos, Phase-field simulation of the microstructure evolution of austenite during multipass hot rolling of HSLA steels, EUROMAT 2017 Conference, Thessaloniki, Greece, September, 2017.
6. M.I.T Tzini, P.I. Sarafoglou, A. Stieben, G.N. Haidemenopoulos, W. Bleck, Austenite evolution and solute partitioning during cyclic transformations in medium-Mn steels, 6th Pan-Hellenic Conference of Metallic Materials, 2016, Ioannina, Greece, December 2016.
7. P.I. Sarafoglou, I. Aristeidakis, M.I.T. Tzini, G.N. Haidemenopoulos, Quantification of the homogenization state in extrudable aluminum alloys, 6th Pan-Hellenic Conference of Metallic Materials, 2016, Ioannina, Greece, December, 2016.
8. G. Aktas, M.I.T. Tzini, S. Polat, J.S. Aristeidakis, S.H. Atapek, P.I. Sarafoglou, G.N. Haidemenopoulos, Simulation and analysis of the solidification characteristics of Si-Mo ductile iron, 1st International Mediterranean Science and Engineering Congress, IMSEC 2016, at Adana, Turkey, October, 2016.
9. Maria-Ioanna Tzini, Panagiota Sarafoglou, Andreas Stieben, Gregory N. Haidemenopoulos, Wolfgang Bleck, Austenite Evolution and Solute Partitioning in the Intercritical Range of a Medium-Mn Steel, FEMS Junior Euromat 2016, Lausanne, Switzerland, Ecole Polytechmique de Lausanne, July, 2016.
10. P.I. Sarafoglou, M.I.T. Tzini, G.N. Haidemenopoulos, Simulation of cyclic transformations in a 0.2C-5Mn steel, 4th International Conference on Engineering Against Failure (ICEAF IV 2015), Skiathos, Greece, May, 2015.

Working Papers

1. Gülşah Aktaş Çelik, Maria-Ioanna T. Tzini, Şeyda Polat, John S. Aristeidakis, Ş. Hakan Atapek, Panagiota I. Sarafoglou, Gregory N. Haidemenopoulos, Simulation and analysis of the solidification characteristics of a Si-Mo ductile iron. Submitted to Journal of Materials Engineering and Performance, April, 2019.
2. Gülşah Aktaş Çelik, Maria-Ioanna T. Tzini, Şeyda Polat, Ş. Hakan Atapek, Gregory N. Haidemenopoulos,Thermal and microstructural characterization of a novel ductile cast iron modified by aluminum addition. Submitted to International Journals of Minerals, Metallurgy and Materials, April, 2019.
3. M. Sotiriou, M.I.T. Tzini, J.S. Aristeidakis, G.N. Haidemenopoulos, I. Barsoum, A computational study of solidification mode and evolution of microsegregation during additive manufacturing of austenitic stainless steel.
4. I. Papadioti, I. Bellas, M-I.T. Tzini, P.I. Christodoulou and N. Aravas, Simulation of thermomechanical process and mechanical behavior of a TRIP steel using an integrated model. (In progress).
5. G.N. Haidemenopoulos, K. Polychronopoulou , A.D. Zervaki, H. Kamoutsi, S.I. Alkhoori, S. Jaffar, P. Cho, M.I.T. Tzini, Investigation of premature creep rupture in steam reformer tubes after accidental overheating. (In progress).

Working Conferences

1. M.I.T. Tzini, G.N. Haidemenopoulos, Multi-Objective Optimization of Processing Routes of HSLA Steels using Mean-Field Modeling. Submitted to 7th Pan-Hellenic Conference of Metallic Materials, Athens, Greece, December, 2019.
2. M. Sotiriou, M.I.T. Tzini, J.S. Aristeidakis, G.N. Haidemenopoulos, I. Barsoum, A computational study of solidification mode and evolution of microsegregation during additive manufacturing of austenitic stainless steel. Submitted to 7th Pan-Hellenic Conference of Metallic Materials, Athens, Greece, December 2019.
3. Gülşah Aktaş Çelik, Şeyda Polat, Ş. Hakan Atapek, Maria-Ioanna T. Tzini, Gregory N. Haidemenopoulos, Thermodynamic Modelling of 3C-6Si-1W-1Al Ductile Cast Iron. Submitted to 4th Metallurgical & Materials Engineering Congress of South-East Europe 2019, Belgrade, Serbia, June, 2019.
4. Gülşah Aktaş Çelik, Şeyda Polat, Ş. Hakan Atapek, Maria-Ioanna T. Tzini, Gregory N. Haidemenopoulos, Microstructural and Thermal Characterization of 3.2C-5Si-1W Novel Ductile Cast Iron. Submitted to 4th Metallurgical & Materials Engineering Congress of South-East Europe 2019, Belgrade, Serbia, June, 2019.
5. M.I.T. Tzini, G.N. Haidemenopoulos, Design of Thermomechanical Control Process of HSLA Steels, 7th Meeting of Research Activity, Volos, Greece, May, 2019.

Other Publications

Preparing Solution Manual: Haidemenopoulos, G. N. (2018). Physical Metallurgy: Principles and Design, CRC Press - Taylor and Francis, ISBN: 9781138627680

Training Courses

1. Concurrent Engineering Challenge 2018, ESA Academy Training and Learning Facility, ESEC-Galaxia, Belgium, October, 2018.
2. Care Plus and AED Training, EMP Medic First Aid, May, 2018.
3. Workshop Granta Design: Teaching Materials in the Contex of Sustainable Development. FEMS Junior Euromat, at Lausanne, Switzerland, Ecole Polytechmique de Lausanne, July, 2016.

Tutorials

1. Verified learning initiative of the Massachusetts Institute of Technology through edX, 3.012S.3x: Structure of Materials, Part 3: Liquid Crystals, Defects, and Diffusion, May 2019.
2. Verified learning initiative of the Massachusetts Institute of Technology through edX, 3.012S.2x: Structure of Materials, Part 2: The Crystalline State, April 2019.
3. Verified learning initiative of the Massachusetts Institute of Technology through edX, 3.012S.1x: Structure of Materials, Part 1: Fundamentals of Materials Structure, March 2019.

Memberships

2018	Hellenic Rescue Team (HRT), Magnesia, Greece
2018	Greenpeace, Greece
2017	Hellenic Metallurgical Society (HMS)
2013-2014	Centaurus Racing Team, Engine & Drivetrain, University of Thessaly, Formula Student Competition at Gyor, Hungary, 2014

Award & Honors

OTE-COSMOTE 2011