

Prof. EMANUELA CERRI, D.I.A. UNIPR

Short CV

Associate Professor of Metallurgy from November 1998, Dept. of Engineering and Architecture, University of Parma (Parma -Italy) with Tenure as a Full Professor (from February 2014). Formerly (nov. 1998-dic. 2013) Ass. Prof. at the Dept. of Innovation Engineering, University of Salento (Lecce-ITALY). Chair of CPDS for the dept. of Engineering and Architecture – UNIPR.

Education: Graduation (full course) in Physics, University of Bologna (December 1990). Ph.D. in Metallurgical Engineering (October 1995 – Turin Polytechnic): 'Effect of plastic deformation on dynamic precipitation of stable and metastable phases in Al-4%Cu (supervisors: prof. E. Evangelista – Dept. of Mechanics, University of Ancona and Prof. N. Ryum - NTNU Trondheim (Norway)). Post-Doc in Metallurgy (Dept. of Mechanics, Ancona University, Industrial Engineering Area). Abroad research experience (1992-1995): N.T.N.U. (Trondheim) with prof. Nils Ryum, O.S.U. (Oregon) with prof. Mike Kassner.

The research activity is collected in 210 papers published in international journals, conference proceedings and book chapters. The main research topics of the past ten years mainly concern: a) the optimization of microstructure and mechanical properties in light alloy products obtained by DMLS, SLM and EMB additive manufacturing technologies; a) friction stir welding (FSW) of light alloys: study of mechanical properties and microstructure evolution of single or multiple lap joints; b) friction stir processing (FSP) of magnesium alloys: mechanical properties at room and high temperature and microstructure; c) severe plastic deformation processes in light alloys; d) evaluation of new high temperature oxidation resistant coatings. The experimental activity has been performed by using mechanical testing machines for tension and compression, hardness measurements, optical microscopy, SEM-FEG, TEM, EDS analysis, X-Rays diffractometry for phase analysis and texture.

Bybliometric indicators: H-index 25 and 1510 citations (from Scopus, 22-10-2020).

Member of GEV09 committee (ANVUR) for Evaluation of Italian Research (VQR 2011-2014). Expert Evaluators of Horizon2020 calls (2015-2017). Member of GEV09 committee (ANVUR) for Evaluation of Italian Research (VQR 2004-2010). Vice President of Physical Metallurgy and Materials Science Committee of Italian Association of Metallurgy-AIM (from November 2014 -) Member of AIM and in the past of TMS (The Minerals and Metals Society). Referee for international scientific journals (MSEA, J.Mat.Sci., J. Alloys and Compound, CompositeA, Mat.& Design, Materials Letters, J. Mat. Proc. Tech. etc.) and invited at international conferences. Referee of National and International research projects. Member of the editorial board of 'La Metallurgia Italiana'. Member of the committee of Industrial Engineering Ph.D. degree at University of Parma from 2014 and formerly of Mechanical and Industrial Eng. Ph.D. degree at University of Salento. Vice-president of Industrial Engineering graduation course (march 2010-march 2012, University of Salento). Supervisor of more than 60 undergraduate students and post-graduated and Ph.D.. Member of International Ph.D. committees (NTNU Trondheim-Norway in 2012, 2013, 2017) and Italian Ph.D. committees (Politecnica delle Marche, University of Salento, University of Trento, University of Bologna) for the

final discussion and achievement of the PhD title. Component of commissions for Researcher competition or grants in Italian Universities.

Research grant by European Commission Research Infrastructures Action-ESTEEM2-grant 20150526-Cerri for performing TEM at FELMI-ZFE in Graz (Austria) in October 2015. Invited speaker, session chair and member of the Scientific Committee of International Conf. THERMEC 2016 – Graz (Austria) 29 maggio-3 giugno 2016. President of the 36° Convegno Nazionale AIM – Parma, 21-23 settembre 2016 and member of the Organizing Committee. Member of the Commission for International Mobility of the DIA.

Teaching courses: Metallurgy, Mechanical Metallurgy, Metallic Materials.

Recent publications

- P. Leo, G. Renna, G. Casalino, E. Cerri, 'Repairing 2024 aluminum alloy via Electro Spark Deposition process: a feasibility study' *Advances in Materials Science and Engineering* (2018), Article ID 8563054, 11 pages
- L. Lattanzi, M.T. Di Giovanni, M. Giovagnoli, A. Fortini, M. Merlin, D. Casari, M. Di Sabatino, E. Cerri, G. L. Garagnani, 'Room Temperature Mechanical Properties of A356 Alloy with Ni Additions from 0.5 Wt.% to 2 Wt.%', *Metals* (2018) 8, 224; doi:10.3390/met8040224
- A. Morri, L. Ceschini, S. Messieri, E. Cerri, S. Toschi, 'Mo addition to the A354 (Al-Si-Cu-Mg) casting alloy: effects on microstructure and mechanical properties at room and high temperature', *Metals* (2018) 8, 393. <https://doi.org/10.3390/met8060393>
- E. Cerri, T. Rimoldi, R. Gabrini, L. Righi, 'Investigations of microstructure and mechanical performances of Ti6Al4V-ELI components produced by DMLS and EBM additive technologies in different technologies', *La Metallurgia Italiana* 4 (2019) 32-42.
- M.T. Di Giovanni, A.E. Mørtzell, T. Saito, S. Akhtar, M. Di Sabatino, Y. Li, E. Cerri, 'Influence of Cu addition on the heat treatment response of A356 foundry alloy', *Materials Today Communications* 19 (2019) 342-348 doi.org/10.1016/j.mtcomm.2019.02.013
- M. T. Di Giovanni, G. Bolelli, E. Cerri, E.M. Castrodeza, 'Fatigue crack growth behavior of a selective laser melted AlSi10Mg', *Engineering Fracture Mechanics* 217 (2019) 106564 <https://doi.org/10.1016/j.engfracmech.2019.106564>
- M.T. Di Giovanni, J. Teixeira Oliveira de Menezes, E. Cerri, E.M. Castrodeza, 'Influence of microstructure and porosity on the fracture toughness of Al-Si-Mg alloy', *J. Mater. Res. Technol.* 9(2) (2020) pp. 1286-1295 doi.org/10.1016/j.jmrt.2019.11.055
- C. Paoletti, S. Spigarelli, M. Cabibbo, E. Cerri, 'Creep behavior of a AlSiMg alloy produced by Additive Manufacturing', *TMS2020 San Diego* (February 2020) TMS 2020 149th Annual Meeting & Exhibition Supplemental Proceedings, pp. 185-193 doi.org/10.1007/978-3-030-36296-6
- E. Cerri, M.T. Di Giovanni, E. Ghio, 'Stability of intermetallic phase particles in a commercial Al-Si-Mg foundry alloy: the role of Cu additions' *La Metallurgia Italiana*, 7/8 (2020) pp. 37-47, ISSN 00260843

- E. Cerri, E. Ghio, 'AlSi10Mg alloy produced by Selective Laser Melting: relationships between Vickers microhardness, Rockwell hardness and mechanical properties' *La Metallurgia Italiana* 7/8 (2020) pp. 5-17, ISSN 00260843.
- E. Cerri, E. Ghio, 'Effect of Friction Stir Processing at High Rotational Speed on Aging of a HPDC Mg9Al1Zn' *Metals* **2020**, 10(8), 1014; <https://doi.org/10.3390/met10081014>
- C. Poletti, E. Santecchia, M. Cabibbo, E. Cerri, S. Spigarelli, 'Modelling the creep behavior of an AlSi10Mg alloy produced by additive manufacturing', *Mat. Sci. Eng. A* 799 (2021) 140138 doi.org/10.1016/j.msea.2020.140138