

Diego Giovanni Manfredi



Personal details

Date of birth	31 January 1978
Civil status	Married, three children
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Education

2018	<i>Associate Professor</i> (National Scientific Qualification – <i>Abilitazione Scientifica Nazionale</i>) in Academic Disciplines <i>Materials Science and Technology</i> (09/D1) and in <i>Industrial Design and Metallurgy</i> (09/A3) for the period April 2018 – April 2024.
2008	<i>PhD in Material Science and Technology</i> at <i>Politecnico di Torino</i> . Thesis “ <i>High ceramic content composites: co-continuous ceramic composites</i> ”, defended on 14 th March 2008, advisor Prof. Claudio Badini, final evaluation: excellent.
2003	Professional qualifying examination on Materials Engineering.
2003	<i>Master Degree in Materials Engineering</i> at <i>Politecnico di Torino</i> . Thesis “ <i>Studio e sviluppo di sospensioni per auto in lega di alluminio mediante squeeze casting</i> ” with a 6 months stage in Stampal S.p.a., advisor prof. Mario Rosso, final evaluation: 110/110 cum laude.

Work experience

May 2016-present	<i>Researcher</i> at the <i>Center for Sustainable Future Technologies (CSFT@Polito)</i> of <i>Istituto Italiano di Tecnologia (IIT)</i> . Main activities: fund raising through competitive research projects and commercial projects; mentoring of post-doc and PhD students of the Additive Manufacturing (AM) division; collaboration with <i>Università di Torino</i> for the development of high strength alloys to be processed by AM; research focused on open architectures and structures like cellular, lattice and foams for applications as electrodes, radiant burners or heat exchangers.
2013-May 2016	<i>Researcher Technologist</i> at the <i>Center for Space Human Robotics (CSHR@Polito)</i> of <i>Istituto Italiano di Tecnologia (IIT)</i> . Main activities: fund raising through competitive research projects and commercial projects; mentoring of post-doc and PhD students of the Additive Manufacturing/3DPrinting (AM/3DP) research line, in particular for new materials development; networking with <i>ADVR-IIT</i> Department and with other research groups of <i>Politecnico di Torino (DENERG)</i> , of <i>CNR-IEIIT</i> , and of <i>Università degli Studi di Bergamo</i> , to fabricate functional components by AM like hydraulic manifolds for robotic applications, high performance heat sinks, microwave waveguide filters for satellite telecommunications.
2010-2012	<i>Post-doc Researcher</i> at the <i>Center for Space Human Robotics (CSHR@Polito)</i> of <i>Istituto Italiano di Tecnologia (IIT)</i> . Main activities:

implementation and organization of the Rapid Prototyping Lab in the frame work of Robotic Platform; research activities focused on the development of the Additive Manufacturing technique Direct Metal Laser Sintering (DMLS) to fabricate lightweight components with complex shapes, like a finger exoskeleton with non-assembly joints, and on the materials characterization at the nano-scale.

- 2008-2009 *Research Fellow* at the *Materials Science and Chemical Engineering Department of Politecnico di Torino*. Research topics: Metal Matrix nano-Composites, multilayered Ceramic Matrix Composites (CMCs) by tape casting for aerospace applications, intermetallic alloys for aerospace engines, ceramic coatings for turbine blades.
- 2005-2007 *PhD student* on *Materials Science and Technology* at *Politecnico di Torino*. Research activity focused on co-continuous metal-ceramic composites obtained by Reactive Metal Penetration.
- 2004 *Quality Engineer* at *Eaton Automotive Srl*. Formation on NDT (Non Destructive Tests) for detecting defects in stainless steels parts and components after hot pressing, heat treatments and post-processing treatments.

Project Grants - as Principal Investigator (PI) for IIT

Competitive projects

- 2017-2019 PROGETTO REGIONALE STAMP “Sviluppo Tecnologico dell’Additive Manufacturing in Piemonte”, inside the Technological Platform “FABBRICA INTELLIGENTE”. IIT is involved in the fabrication of end-users demonstrators in different alloys by Laser Powder Bed Fusion process, and in the development of new alloys for the same process.
- 2014-2017 HELMETH “Integrated High-Temperature Electrolysis and Methanation for Effective Power to Gas Conversion”, EU FP7 for the Fuel Cells and Hydrogen JTI under Grant Agreement 621210 (Call: FCH-JU-2013-1). IIT is a third party to Politecnico di Torino (DISAT Department) with the aim of designing and fabricating heat exchanging elements for high temperature and harsh environments by DMLS.

Commercial projects

- 2015-2016 Contract with ASE (*Aerospace Electrical Systems*) Spa for the re-design and subsequent manufacturing by the Additive Manufacturing technique DMLS of a brushless starter generator.
- 2015 Contract with *Fondazione Bruno Kessler (FBK)* for the production by the Additive Manufacturing technique DMLS of mechanical components to be used for automotive applications in aluminum and titanium alloys.
- 2014-2015 Contract with *ASTRA Refrigeranti Spa* for the production of a compact heat exchanger by DMLS in aluminum alloy with a remarkably enhanced convective heat transfer coefficient, taking advantage of artificial roughness typical of this technology.

PhD mentoring

- 2016-present *Silvia Marola*, Title proposed “Metallic materials for Additive Manufacturing: alloys microstructure, rapid solidification processes, testing of products”, within Progetto Regionale STAMP, in collaboration with Dottorato in Scienze Chimiche e dei Materiali, Università di Torino (XXXII) Cycle, Tutor: Prof. L. Battezzati

- 2016-present *Simone Parizia*, Title proposed “Additive Manufacturing of high temperature resistant alloys”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, (XXXII) Cycle, Tutor: Prof. P. Fino
- 2015-present *Giulio Cattano*, Title proposed “Development of new alloys for Additive Manufacturing processes”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, (XXXI) Cycle, Tutor: Prof. P. Fino
- 2014-present *Francesco Trevisan*, Title proposed “Study and characterization of different metal alloys processed by Direct Metal Laser Sintering”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, (XXX) Cycle, Tutor: Prof. P. Fino
- 2014-present *Jukka Pakkanen*, Title proposed “Design and fabrication of new smart structures through Additive Manufacturing”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, (XXX) Cycle, Tutor: Prof. P. Fino
- 2012-2014 *Riccardo Canali*, Thesis “Study, development and characterization of aluminum based materials by additive manufacturing”, IIT Project on Space Human Robotics, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, (XXVII Cycle), Tutor: Prof. P. Fino
- 2011-2013 *Manickavasagam Krishnan*, Thesis “Investigation of material and mechanical properties of Al alloy and Al based MMC parts produced by DMLS for industrial application”, IIT Project on Space Human Robotics, in collaboration with Department of Management and Production Engineering and Department of Applied Science and Technology, Politecnico di Torino, (XXVI Cycle), Tutors: Prof. L. Iuliano, Prof. P. Fino

Post-doc mentoring

- 2014-present *Massimo Lorusso*: his research activities are mainly focused on the preparation and characterization of samples with very fine microstructures (as processed by Additive Manufacturing techniques) by mechanical tests: tensile and fatigue tests, micro- and nano-hardness, macro- micro- and nano- wear resistance evaluation.

Teaching - Lecturing

- 2017-2018 *Lecturer* in the course “*Tecnologia dei Materiali da Costruzione*” of Laurea Magistrale Ingegneria Civile, Politecnico di Torino (30 hours).
- 2015-2017 *Lecturer* in the Second level Specializing Master course *Additive Manufacturing* of Politecnico di Torino, module “*Materials for additive manufacturing*”, on Steels, Ti based alloys and Ni based Superalloys.
- 2016-2017 *Adjunct Lecturer* of Prof. Marina Cabrini in the course “*Materiali Metallici*” of Ingegneria Meccanica, Università degli Studi di Bergamo (3 hours).
- 2016-2017 *Adjunct Lecturer* of Prof. Marina Cabrini in the course “*Biomateriali*” of Ingegneria Tecnologie per la Salute, Università degli Studi di Bergamo (3 hours).
- 2009-2010 *Invited Professor* from Scuola Universitaria Professionale della Svizzera Italiana (SUPSI), Manno (Lugano), in the Master of Science in Precision Manufacturing, module *Materials for Precision Manufacturing*, lecturer for the course “*Materials for Cutting Tools*” (22 hours).
- 2009-2010 *Adjunct Lecturer* of Prof. Paolo Fino in the course “*Scienza e Tecnologia dei Materiali Ceramici*” of Ingegneria dei Materiali, Politecnico di Torino (30 hours).
- 2008-2019 *Adjunct Lecturer* of Prof. Paolo Fino in the course “*Scienza e Tecnologia dei Materiali Ceramici*” of Ingegneria dei Materiali, Politecnico di Torino (30 hours).
- 2006-2007 *Adjunct Lecturer* of Prof. Paolo Fino in the course “*Tecnologia dei Materiali*” of Ingegneria Logistica e della Produzione, Politecnico di Torino (14 hours).

Language Skills

Italian: mother tongue
English: advanced level
French: basic level

Reviewer

Book proposals on Additive Manufacturing for Elsevier and Springer.

International Journals (Elsevier): Materials Science & Engineering A, Journal of Alloys & Compounds, Journal of Material Processing Technology, Additive Manufacturing.

Technical Skills

Materials Processing:

Laser Powder Bed Fusion (LPBF), Direct Light Processing (DLP), Reactive Metal Penetration (RMP), Tape casting, Spark Plasma Sintering (SPS).

Materials Characterization:

Field Emission Gun Scanning Electron Microscopy (FEGSEM), Energy Dispersive X-Ray Spectroscopy (EDX), Nanoindentation (through a Hysitron TI-950 Triboindenter), X-ray Diffraction (XRD), Mechanical materials testing (tensile, flexural, hardness, Young's Modulus, wear), Optical Microscopy, Thermal materials analyses (DTA, DSC, TGA, TMA).

Invited Talks & Seminars

- 2017 In the *Emerging Technologies and Security Course (4 - 8 December 2017)*, UNICRI (United Nations Interregional Crime and Justice Research Institute), Torino, talk on "*New technologies: 3D Printing Additive Manufacturing – AM*" (7th December)
- 2017 *University of Bergamo*, invited by *prof M. Cabrini*, corso di Biomateriali della laurea in Ingegneria Meccanica (A.A. 2017-2018), seminar on "*Tecnologie additive e stampa 3D in ambito biomedicale*", Dalmine (BG) (4th December)
- 2017 *Cardiff University*, invited by *prof A.Porch*, *Centre for High Frequency Engineering (CHFE)*, seminar on "*Laser Powder Bed Fusion of Al and Ti alloys for Microwave Waveguide Devices*" (9 May)

Conferences Chairman

- 2017 *Euro PM2017 Congress & Exhibition*, in: "*Session 1 - AM Beam Based Technologies*" and "*Session 14 - Special Materials for AM*", Milano, Italy (1-5 October)
 - 2017 *ICEAA'17 & IEEE-APS APWC'17*, in the special session: "*Additive Manufacturing: Technologies and Microwave Applications*", Verona, Italy (11-15 September)
 - 2017 *KES-SDM2017 4th International Conference on Sustainable Design and Manufacturing*, in the session: "*Sustainability of 3D Printing and Additive Manufacturing*", Bologna, Italy (26-28 April)
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Conferences with oral presentations

- 2017 ICEAA'17 & IEEE-APS APWC'17, Special Session: *Additive Manufacturing: Technologies and Microwave Applications*, "Laser Powder Bed Fusion of Aluminum, Titanium and Nickel Based Alloys: Materials and Design Investigations", Verona, Italy (11-15 September) - INVITED
- 2017 XIV Convegno Nazionale AIMAT – XI Convegno Nazionale INSTM, sessione *Metalli*, "Selective Laser Melting of Aluminum Alloys: Relations Among Process, Microstructure and Mechanical Properties", Ischia Porto (Na), Italy (12-15 July)
- 2017 XXIII AIV Conference, session *Materials and Technologies for Additive Manufacturing*, "Laser powder bed fusion of Aluminium alloys: process, microstructure and mechanical properties", Florence, Italy (5-7 April)
- 2016 1° *Workshop Nazionale su Additive Manufacturing per lo Spazio: Stato dell'arte, Sviluppi e Prospettive*, "Presente e futuro dell'AM al Politecnico di Torino", ASI (Italian Space Agency), Tor Vergata, Rome, Italy (20-22 July)
- 2015 *Aerospace & Defense Meetings 5th edition*, "Materials development produced by Selective Laser Melting (SLM) for aerospace applications", Turin, Italy (17-19 November) - INVITED
- 2015 *NanoItaly 1st edition*, "Additive Manufacturing for Robotic Components", Rome, Italy (21-24 September) - INVITED
- 2014 *Workshop Strategic Research Cluster in Horizon 2020*, ASI (Italian Space Agency), Tor Vergata, Rome, Italy (13 January)
- 2013 ECCOMAS Thematic Conference on Smart Structures and Materials SMART2013, special session on *Application to robotics for human in space*, "Lightweight Metal Structures By DMLS", Turin, Italy (24-26 June) - INVITED
- 2013 6th International Conference on Advanced Research on Virtual and Rapid Prototyping (VRAP), "Aluminium Matrix Composites (AMCs) by DMLS", Leiria, Portugal, (1-5 October)
- 2012 ECCM15 – 15th European Conference on Composite Materials, "Realization and characterization of AlSiMg/SiC composites by Direct Metal Laser Sintering", Venice, Italy (24-28 June)
- 2009 ICCM-17, 17th International Conference on Composite Materials, "Co-continuous metal/ceramic composites made by Reactive Metal Penetration of commercial aluminium alloys into cordierite", Edinburgh International Convention Centre (EICC), Edinburgh, UK, (27-31 July)
- 2008 ETDCM8, Eighth International Seminar on Experimental Techniques and Design in Composite Materials, "Preparation and properties of NiAl-Al₂O₃ co-continuous composites obtained by Reactive Metal Penetration", Castiadas, Costa Rei (Ca), Italy (3-6 October)

Patents

- 2012 *Giunto articolare per esoscheletro, in particolare per applicazioni aerospaziali*. On behalf of Politecnico di Torino e Fondazione Istituto Italiano di Tecnologia. Inventors: Atzeni E., Bruno E., Calignano F., Manfredi D., Ambrosio E.P. Date 16/10/2012, n. TO2012A000902.

Publications

Journal articles

- 2018 F. Calignano, G. Cattano, D. Manfredi. *Manufacturing of thin wall structures in AlSi10Mg alloy by laser powder bed fusion through process parameters*. Journal of Materials Processing Tech., 255: 773-783, DOI: 10.1016/j.jmatprotec.2018.01.029

- 2018 S. Marola, D. Manfredi, G. Fiore, M.G. Poletti, M. Lombardi, P. Fino, L. Battezzati. *A comparison of Selective Laser Melting with bulk rapid solidification of AlSi10Mg alloy*. Journal of Alloys and Compounds, 742: 271-279, DOI: 10.1016/j.jallcom.2018.01.309
- 2018 A. Lamberti, D. Manfredi, F. Calignano, C.F. Pirri. *TiO₂ nanotube-based smart 3D electrodes by anodic oxidation of additively manufactured Ti6Al4V structures*. Materials Today Communications, Vol. 15, Pages 165-170, DOI: 10.1016/j.mtcomm.2018.02.009
- 2018 A. Aversa, G. Marchese, D. Manfredi, M. Lorusso, F. Calignano, S. Biamino, M. Lombardi, P. Fino, M. Pavese. *Laser Powder Bed Fusion of a High Strength Al-Si-Zn-Mg-Cu Alloy*. Metals, 8, 300, DOI: 10.3390/met8050300
- 2018 O. Peverini, M. Lumia, G. Addamo, F. Paonessa, G. Virone, R. Tascone, F. Calignano, G. Cattano, D. Manfredi. *Integration of a H-plane Bend, a Twist and a Filter in Ku/K-band through Additive Manufacturing*. IEEE Transactions on Microwave Theory and Techniques, Print ISSN: 0018-9480, Online ISSN: 1557-9670, DOI: 10.1109/TMTT.2018.2809505
- 2018 G. Marchese, A. Aversa, M. Lorusso, D. Manfredi, F. Calignano, M. Lombardi, S. Biamino, M. Pavese. *Development and Characterisation of Aluminium Matrix Nanocomposites AlSi10Mg/MgAl₂O₄ by Laser Powder Bed Fusion*. Metals, 8, 175, DOI:10.3390/met8030175
- 2018 A. Aversa, M. Moshiri, E. Librera, M. Hadi, G. Marchese, D. Manfredi, M. Lorusso, F. Calignano, S. Biamino, M. Lombardi, M. Pavese. *Single scan track analyses on aluminium based powders*. Journal of Materials Processing Tech., 255: 17-25, DOI: 10.1016/j.jmatprotec.2017.11.055
- 2017 F. Trevisan, F. Calignano, A. Aversa, G. Marchese, M. Lombardi, S. Biamino, D. Ugues, D. Manfredi. *Additive manufacturing of titanium alloys in the biomedical field: processes, properties and applications*. J Appl Biomaterials & Functional Mat., e-ISSN 2280-8000, PubMed 28967051, DOI: 10.5301/jabfm.5000371
- 2017 D. Manfredi, R. Bidulski. *Laser Powder Bed Fusion of Aluminum Alloys*. Acta Metallurgica Slovaca, Volume 23, Issue 3, 2017, Pages 276-282, DOI: 10.12776/ams.v23i3.988
- 2017 O. Peverini, G. Addamo, M. Lumia, G. Virone, F. Calignano, M. Lorusso, D. Manfredi. *Additive Manufacturing of Ku/K-band Waveguide Filters: A Comparative Analysis among Selective Laser Melting and Stereo-lithography*. IET Microwaves, Antennas & Propagation, Online ISSN 1751-8733, DOI: 10.1049/iet-map.2017.0151
- 2017 Cabrini M, Lorenzi S, Pastore T, Pellegrini S, Testa C, Manfredi D, Calignano F, Fino P, Cattano G. *Evaluation of corrosion resistance of aluminum silicon alloys manufactured by LPBF*. Metallurgia Italiana, Vol. 109, Issue 7-8, July-August 2017, Pages 123-126
- 2017 A. Saboori, M. Dadkhah, M. Pavese, D. Manfredi, S. Biamino, P. Fino. *Hot deformation behavior of Zr-1%Nb alloy: Flow curve analysis and microstructure observations*. Materials Science & Engineering A 696: 366–373
- 2017 C. G. Ferro, S. Varetta, F. Vitti, P. Maggiore, M. Lombardi, S. Biamino, D. Manfredi, F. Calignano, *A Robust Multifunctional Sandwich Panel Design with Trabecular Structures by the Use of Additive Manufacturing Technology for a New De-Icing System*. Technologies 2017, 5, 35; doi:10.3390/technologies5020035
- 2017 A. Aversa, G. Marchese, M. Lorusso, F. Calignano, S. Biamino, E. P. Ambrosio, D. Manfredi, P. Fino, M. Lombardi and M. Pavese. *Microstructural and Mechanical Characterization of Aluminum Matrix Composites Produced by Laser Powder Bed Fusion*. Advanced Engineering Materials, record on line 17 May 2017, DOI: 10.1002/adem.201700180
- 2017 F. Calignano, D. Manfredi, E. P. Ambrosio, S. Biamino, M. Lombardi, E. Atzeni, A. Salmi, P. Minetola, L. Iuliano, P. Fino. *Overview on Additive Manufacturing Technologies*. Proceedings of the IEEE, vol 105 (4): 593-612
- 2017 O. A. Peverini, M. Lumia, F. Calignano, G. Addamo, M. Lorusso, E. P. Ambrosio, D. Manfredi, G. Virone. *Selective Laser Melting Manufacturing of Microwave Waveguide Devices*. Proceedings of the IEEE, vol 105 (4): 620-631
- 2017 A. Aversa, M. Lorusso, G. Cattano, D. Manfredi, F. Calignano, E.P. Ambrosio, S. Biamino, P. Fino, M. Lombardi, M. Pavese. *A study of the microstructure and the mechanical properties of an Al-Si-Ni alloy produced via selective laser melting*. Journal of Alloys and Compounds, 695: 1470-1478

- 2017 F. Trevisan, F. Calignano, M. Lorusso, A. Aversa, J. Pakkanen, E. P. Ambrosio, M. Lombardi, P. Fino, D. Manfredi. *On the selective laser melting (SLM) of AlSi10Mg alloy: process, microstructure and mechanical properties*. *Materials*, 10(1), 76; DOI:10.3390/ma10010076
- 2017 A. Aversa, M. Lorusso, F. Trevisan, E.P. Ambrosio, F. Calignano, D. Manfredi, S. Biamino, P. Fino, M. Lombardi, M. Pavese. *Effect of Process and Post-Process Conditions on the Mechanical Properties of an A357 Alloy Produced via Laser Powder Bed Fusion*. *Metals*, 7, 68
- 2017 G. Marchese, X. Garmendia Colera, F. Calignano, M. Lorusso, S. Biamino, P. Minetola and D. Manfredi. *Characterization and Comparison of Inconel 625 Processed by Selective Laser Melting and Laser Metal Deposition*. *Advanced Engineering Materials*, Vol 19 (3) DOI:10.1002/adem.201600635
- 2017 F. Calignano, M. Lorusso, J. Pakkanen, F. Trevisan, E.P. Ambrosio, D. Manfredi, P. Fino. *Investigation of accuracy and dimensional limits of part produced in aluminum alloy by selective laser melting*. *International Journal of Advanced Manufacturing Technology*, 88 (1): 451-458
- 2016 M. Cabrini, S. Lorenzi, T. Pastore, S. Pellegrini, C. Testa, D. Manfredi, E. P. Ambrosio, F. Calignano, M. Lorusso. *Studio della resistenza alla corrosione della lega AlSi10Mg ottenuta per Additive Manufacturing in soluzione di cloruri*. *La Metallurgia Italiana*, 12: 137-146, ISSN 0026-0843
- 2016 M. Lorusso, A. Aversa, D. Manfredi, F. Calignano, E.P. Ambrosio, D. Ugues, M. Pavese. *Tribological Behavior of Aluminum Alloy AlSi10Mg-TiB₂ Composites Produced by Direct Metal Laser Sintering (DMLS)*. *Journal of Materials Engineering and Performance*, 25 (8): 3152-3160
- 2016 G. Marchese, E. Bassini, M. Calandri, E. P. Ambrosio, F. Calignano, M. Lorusso, D. Manfredi, M. Pavese, S. Biamino, P. Fino. *Microstructural investigation of as-fabricated and heat-treated Inconel 625 and Inconel 718 fabricated by direct metal laser sintering: contribution of Politecnico di Torino and Istituto Italiano di Tecnologia (IIT) di Torino*. *Metal Powder Report*, 71(4): 273-278
- 2016 M. Cabrini, S. Lorenzi, T. Pastore, S. Pellegrini, E.P. Ambrosio, F. Calignano, D. Manfredi, M. Pavese, P. Fino. *Effect of heat treatment on corrosion resistance of DMLS AlSi10Mg alloy*. *Electrochimica Acta*, Vol 206: 346–355
- 2016 J. Pakkanen, F. Calignano, F. Trevisan, M. Lorusso, E.P. Ambrosio, D. Manfredi, P. Fino. *Study of Internal Channel Surface Roughnesses Manufactured by Selective Laser Melting in Aluminum and Titanium Alloys*. *Metallurgical and Materials Transactions A*, 47 (8): 3837-3844
- 2016 E. Fantino, A. Chiappone, I. Roppolo, D. Manfredi, R. Bongiovanni, C. F. Pirri, and F. Calignano. *3D Printing of Conductive Complex Structures with In Situ Generation of Silver Nanoparticles*. *Advanced Materials*, 28 (19): 3712-3717
- 2016 A. Chiappone, E. Fantino, I. Roppolo, M. Lorusso, D. Manfredi, P. Fino, C. F. Pirri, and F. Calignano. *3D Printed PEG-Based Hybrid Nanocomposites Obtained by Sol–Gel Technique*. *ACS Appl. Mater. Interfaces*, 8 (8): 5627–5633
- 2016 M. Cabrini, S. Lorenzi, T. Pastore, S. Pellegrini, M. Pavese, P. Fino, E. P. Ambrosio, F. Calignano and D. Manfredi. *Corrosion resistance of direct metal laser sintering AlSiMg alloy*. *Surface and Interface Analysis*, 48 (8): 818-826
- 2016 M. Cabrini, S. Lorenzi, T. Pastore, S. Pellegrini, D. Manfredi, P. Fino, S. Biamino, C. Badini. *Evaluation of corrosion resistance of Al–10Si–Mg alloy obtained by means of Direct Metal Laser Sintering*. *Journal of Materials Processing Tech.*, 231 (5): 326–335
- 2016 M. Fasano, L. Ventola, F. Calignano, D. Manfredi, E. P. Ambrosio, E. Chiavazzo, P. Asinari. *Passive heat transfer enhancement by 3D printed Pitot tube based heat sink*. *International Communications in Heat and Mass Transfer*, 74: 36-39
- 2015 F. Calignano, T. Tommasi, D. Manfredi, A. Chiolerio. *Additive Manufacturing of a Microbial Fuel Cell—A detailed study*. *Scientific Reports*, 5: 17373
- 2015 O.A. Peverini, G. Addamo, R. Tascone, G. Virone, P. Cecchini, R. Mizzoni, F. Calignano, E.P. Ambrosio, D. Manfredi, P. Fino. *Enhanced Topology of E-Plane Resonators for High-Power Satellite Applications*. *IEEE Transactions on Microwave Theory and Techniques*, 63 (10): 3361-3373
- 2014 S. Hernández, V. Cauda, D. Hidalgo, V.F. Rivera, D. Manfredi, A. Chiodoni, F.C. Pirri. *Fast and low-cost synthesis of 1D ZnO-TiO₂ core-shell nanoarrays: characterization and enhanced photo-electrochemical performance for water splitting*. *Journal of Alloys and Compounds*, 615: 530-537

- 2014 S. Stassi, V. Cauda, G. Canavese, D. Manfredi, A. Chiodoni, C.F. Pirri. *Shape-controlled synthesis of silver nature-like spiky particles for piezoresistive sensor applications*. European Journal of Inorganic Chemistry, 16: 2711-2719
- 2014 D. Hidalgo, R. Messina, A. Sacco, D. Manfredi, S. Vankova, E. Garrone, G. Saracco, S. Hernández. *Thick mesoporous TiO₂ films through a sol-gel method involving a non-ionic surfactant: Characterization and enhanced performance for water photo-electrolysis*. International Journal of Hydrogen Energy, 39 (36): 21512-21522
- 2014 L. Ventola, F. Robotti, M. Dialameh, F. Calignano, D. Manfredi, E. Chiavazzo, P. Asinari. *Rough surfaces with enhanced heat transfer for electronics cooling by direct metal laser sintering*. International Journal of Heat and Mass Transfer, 75: 58-74
- 2014 E. Chiavazzo, L. Ventola, F. Calignano, D. Manfredi, P. Asinari. *A sensor for direct measurement of small convective heat fluxes: Validation and application to micro-structured surfaces*. Experimental Thermal and Fluid Science, 55: 42-53
- 2014 M. Krishnan, E. Atzeni, R. Canali, F. Calignano, D. Manfredi, E.P. Ambrosio, L. Iuliano. *On the effect of process parameters on properties of AISi10Mg parts produced by DMLS*. Rapid Prototyping Journal, 20 (6): 449-458
- 2013 D. Manfredi, F. Calignano, E.P. Ambrosio, M. Krishnan, R. Canali, S. Biamino, M. Pavese, E. Atzeni, L. Iuliano, P. Fino, C. Badini. *Direct Metal Laser Sintering: an additive manufacturing technology ready to produce lightweight structural parts for robotic applications*. La Metallurgia Italiana, 105 (10): 15-25, ISSN 0026-0843
- 2013 A. Lamberti, A. Sacco, S. Bianco, D. Manfredi, M. Armandi, M. Quaglio, E. Tresso, C.F. Pirri. *An easy approach for the fabrication of TiO₂ nanotube-based transparent photoanodes for Dye-sensitized Solar Cells*. Solar Energy, 95: 90–98
- 2013 A. Chiolerio, M. Lombardi, A. Guerriero, G. Canavese, S. Stassi, R. Gazia, V. Cauda, D. Manfredi, A. Chiodoni, A. Verna, M. Cocuzza, L. Montanaro, C.F. Pirri. *Effect of the fabrication method on the functional properties of BaTiO₃ – PVDF nanocomposites*. Journal of Materials Science, 48: 6943–6951
- 2013 A. Lamberti, N. Garino, A. Sacco, S. Bianco, D. Manfredi, C. Gerbaldi. *Vertically aligned TiO₂ nanotube array for high rate Li-based micro-battery anodes with improved durability*. Electrochimica Acta, 102: 233-239
- 2013 A. Lamberti, A. Sacco, S. Bianco, M. Quaglio, D. Manfredi, C.F. Pirri. *Enhancement of electron lifetime in Dye-sensitized Solar Cell using anodically grown TiO₂ nanotube/nanoparticle composite photoanodes*. Microelectronic Engineering, 111: 137-142
- 2013 D. Manfredi, F. Calignano, M. Krishnan, R. Canali, E.P. Ambrosio, E. Atzeni. *From Powders to Dense Metal Parts: Characterization of a Commercial AISiMg Alloy Processed through Direct Metal Laser Sintering*. Materials, 6 (3): 856-869
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Torino, 12th April 2018

Diego Giovanni Manfredi



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