

Diego Giovanni Manfredi



Personal details

Date of birth	██████████
Civil status	██████████
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E-mail	diego.manfredi@polito.it
Occupation	Associate Professor at Politecnico di Torino (Scopus Author ID: 23967988600; h-index 36; orcid 0000-0002-2876-143X); Affiliated Researcher at Istituto Italiano di Tecnologia IIT@Polito

Education

2008	<i>PhD in Material Science and Technology at Politecnico di Torino. Thesis "High ceramic content composites: co-continuous ceramic composites", defended on 14th March 2008, advisor Prof. Claudio Badini, final evaluation: excellent.</i>
2003	Professional qualifying examination on Materials Engineering.
2003	<i>Master Degree in Materials Engineering at Politecnico di Torino. Thesis "Studio e sviluppo di sospensioni per auto in lega di alluminio mediante squeeze casting" with a 6 months stage in Stampal S.p.a., advisor prof. Mario Rosso, final evaluation: 110/110 cum laude.</i>

Work experience

August 2022-present	<i>Associate Professor at Politecnico di Torino in the Department of Applied Science and Technology (academic discipline Materials Science and Technology 09/D1). Main activities: teaching/lecturing in Bachelor courses of Engineering, mentoring of PhD students in Material Science and Technology, fund raising through competitive research project focused on AM technologies. Scientific principal investigator in a national project with Michelin.</i> <i>Affiliated Researcher of the Center for Sustainable Future Technologies (CSFT@Polito) of Istituto Italiano di Tecnologia (IIT). Scientific principal investigator in a commercial project with Thales Alenia Space, ESA, Italian National Research Centre CNR-IEEIT and BEAM-IT, focused on AM technologies.</i>
August 2019-July 2022	<i>Assistant Professor at Politecnico di Torino in the Department of Applied Science and Technology. Main activities: teaching/lecturing in Bachelor courses of Engineering, mentoring of PhD students in Material Science and Technology, fund raising through competitive research project focused on AM technologies. Scientific principal investigator in a national project with Michelin.</i>

Affiliated Researcher of the Center for Sustainable Future Technologies (CSFT@Polito) of Istituto Italiano di Tecnologia (IIT). Scientific principal investigator in the European funded project ECCO, and in a commercial project with Thales Alenia Space, ESA, Italian National Research Centre CNR-IEEIT and BEAM-IT, focused on AM technologies. Mentoring of a post-doc. Supervisor of PhD students on AM.

- January 2018-July 2019 *Researcher at the Center for Sustainable Future Technologies (CSFT@Polito) of Istituto Italiano di Tecnologia (IIT). Main activities: fund raising through competitive research projects and commercial projects; mentoring of post-doc and PhD students of the Advanced Materials for Sustainable Future Technologies research line; collaboration with CNR-IEEIT institute to fabricate by AM microwave waveguide filters for satellite telecommunications; collaboration with Università di Torino for the development of high strength Al alloys to be processed by Additive Manufacturing (AM); collaboration with Università degli Studi di Bergamo to investigate the corrosion behavior of AM alloys.*
- 2013-December 2017 *Researcher Technologist at the Center for Sustainable Future Technologies (CSFT@Polito) of Istituto Italiano di Tecnologia (IIT) (formerly known as Center for Space Human Robotics CSHR@Polito). 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 ADVR-IIT Department and with DENERG department of Politecnico di Torino to fabricate functional components by AM like hydraulic manifolds for robotic applications and high performance heat sinks. The research was also focused on open architectures and structures like cellular, lattice and foams for applications as electrodes, radiant burners or heat exchangers.*
- 2010-2012 *Post-doc Researcher at the Center for Space Human Robotics (CSHR@Polito) of Istituto Italiano di Tecnologia (IIT). 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.*

Competitive projects

- 2022-2025 European project *FLUENTLY "Fluently – the essence of human-robot interaction"*, Horizon Europe Grant Agreement n. 101058680. Coordinator: Reply Deutschland SE. Scientific PI for DISAT department. Value: 69K€
- 2021-2023 Regional Project 4 ASSI "*4 Assi – Assieme per innovare*", funded by Regione Piemonte with Grant POR FESR Piemonte 2014/2020 *Piattaforma tecnologica di "filiera"*, Bando Pi.Te.F. Prime contractor: Michelin. One of the main goals was the use of Direct Energy Deposition (DED) for repairing high hardness steel components used in elastomeric mixing and forming for tyres. Politecnico was involved in the development of high hardness materials to be deposited on a substrate made by high carbon content steel, which is well-known difficult to be welded. Value: 590K€
- 2017-2022 European project *ECCO "Energy Efficient Coil Coating Process"*, call H2020-SPIRE-2017, Innovation Action 768692. The main idea was to find novel solution for the curing oven operation within coil coating industrial process, increasing the compactness and energetic efficiency of the system, and the production flexibility. IIT was involved in the development and characterization of advanced materials processed by 3D printing to be used in IR radiant porous burners. Value: 351K€
- 2016-2019 Regional Project *STAMP "Sviluppo Tecnologico dell'Additive Manufacturing in Piemonte"*, funded by Regione Piemonte with Grant POR FESR Piemonte 2014/2020 "*Fabbrica Intelligente*". IIT was involved in the fabrication of end-users demonstrators for aeronautics, aerospace, automotive in different alloys by Laser Powder Bed Fusion process, in the development of new alloys for the same process and in the optimization of process and post-process conditions. Value: 321K€
- 2014-2017 European project *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 was 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. Value: 100K€

Commercial projects

- 2020-2023 Contract with *Thales Alenia Space* within the call *ESA GSTP AO/1-9376/19/NL/HK "Evaluation and Consolidation of Additive Manufacturing Processes and Materials for the Manufacturing of RF Hardware"*. IIT is involved in materials investigation and characterization for applications concerning RF satellite telecommunications with components fabricated through AM techniques. Value: 150K€
- 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. Value: 88K€
- 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. Value: 20K€
- 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. Value: 18K€

- 2022-present *Nicolò Arcieri*, Title proposed “Development of lightweight alloys and composites for Powder Bed Fusion processes” Department of Applied Science and Technology, Politecnico di Torino, XXXVII Cycle, Tutor: Prof. D. Manfredi.
- 2021-present *Ilaria Lagalante*, Title proposed “Additive manufacturing of cellular lattice structures in innovative alloys” Department of Applied Science and Technology, Politecnico di Torino, XXXVII Cycle, Tutor: Dr. D. Manfredi.
- 2020-present *Josip Vincic*, Title proposed “Additive manufacturing for repairing industrial metallic components” IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXVI Cycle, Tutor: Dr. D. Manfredi; Co-tutor: Prof. F. Bondioli
- 2020-present *Jayant Barode*, Title proposed “Efficient additive manufacturing production for metallic parts” Competence Industry Manufacturing 4.0 , in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXVI Cycle, Tutor: Dr. D. Manfredi; Co-tutor: Prof. F. Bondioli
- 2020-present *Matteo Vanzetti*, Title proposed “Green additive manufacturing materials” IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXVI Cycle, Tutor: Prof. F. Bondioli; Co-tutor: Dr. D. Manfredi
- 2019-2022 *Fabrizio Marinucci*, Title “Development of AlSi10Mg based alloys for Additive Manufacturing Processes” IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXV Cycle, Tutor: Prof. F. Bondioli; Co-tutor: Dr. D. Manfredi
- 2018-2021 *Enrico Virgillito*, Title “Production and Characterization of Metallic Powders to be Processed by Additive Manufacturing”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXIV Cycle, Tutor: Prof. M. Lombardi; Co-tutor: Dr. D. Manfredi
- 2016-2019 *Simone Parizia*, Title “Study of heat treatments for the Inconel 625 and process optimization for the Inconel 939 produced by Laser Powder Bed Fusion”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXII Cycle, Tutor: Prof. P. Fino; Supervisor: Dr. D. Manfredi
- 2015-2018 *Giulio Cattano*, Title “Feasibilities studies on Laser Powder Bed Fusion of powder mixtures based on Aluminium Alloys or High Entropy Alloys”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXXI Cycle, Tutor: Prof. P. Fino; Supervisor: Dr. D. Manfredi
- 2014-2017 *Francesco Trevisan*, Thesis “Study and characterisation of different metal alloys processed through Laser Powder Bed Fusion”, IIT Project on Sustainable Future Technologies, in collaboration with Department of Applied Science and Technology, Politecnico di Torino, XXX Cycle, Tutor: Prof. P. Fino; Co-tutor: Dr. D. Manfredi
- 2014-2017 *Jukka Pakkanen*, Thesis “Designing for Additive Manufacturing: Product and Process driven design for Metals and Polymers”, 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

IIT Post-doc mentoring

- 2020-2022 *Silvia Marola*: her research activities were mainly focused on the study of new materials for RF applications (satellite telecommunications) by Additive Manufacturing.
- 2014-2020 *Massimo Lorusso*: his research activities were 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

- 2022-2023 *Lecturer* in the course “*Scienza e Tecnologia dei Materiali*” (ING-IND 22) of Laurea Magistrale Ingegneria Aerospaziale (48 hours), and in the course “*Materiali e loro tecnologie applicati al design*” (ING-IND 22) of Laurea Magistrale Design e Comunicazione (80 hours).
- 2021-2022 *Lecturer* in the course “*Scienza e Tecnologia dei Materiali*” (ING-IND 22) of Laurea Magistrale Ingegneria Aerospaziale (48 hours), and in the course “*Scienza e Tecnologia dei Materiali Ceramici*” (ING-IND 22) of Laurea Magistrale Ingegneria dei Materiali (21 hours).
- 2020-2021 *Lecturer* in the course “*Scienza e Tecnologia dei Materiali*” (ING-IND 22) of Laurea Magistrale Ingegneria Aerospaziale (45 hours), in the course “*Nuovi Materiali per il Design*” (ING-IND 22) of Laurea Magistrale Design e Comunicazione visiva (30 hours), and in the course “*Scienza e Tecnologia dei Materiali Ceramici*” (ING-IND 22) of Laurea Magistrale Ingegneria dei Materiali (21 hours).
- 2020-2021 *Lecturer* in the course “*Open Africa Power 2020*” (ING-IND 22), *prof. G. Bracco*
- 2019-2020 *Lecturer* in the course “*Scienza e Tecnologia dei Materiali*” (ING-IND 22) of Laurea Magistrale Ingegneria Aerospaziale (48 hours), and in the course “*Scienza e Tecnologia dei Materiali Ceramici*” (ING-IND 22) of Laurea Magistrale Ingegneria dei Materiali (21 hours).
- 2018-2019 *Tutor of students* in the course “*Materiali e Tecnologie per il design*” (ING-IND 22) of Design e Comunicazione Visiva, Prof. Mariangela Lombardi, Politecnico di Torino (30 hours).
- 2017-2018 *Lecturer* in the course “*Tecnologia dei Materiali da Costruzione*” (ING-IND 22) of Laurea Magistrale Ingegneria Civile, Politecnico di Torino (30 hours).
- 2017-2018 *Adjunct Lecturer* in the course “*Materiali e Tecnologie per il design*” (ING-IND 22) of Design e Comunicazione Visiva, Prof. Mariangela, Lombardi Politecnico di Torino (20 hours).
- 2015-2018 *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* in the course “*Materiali Metallici*” (ING-IND 22) of Ingegneria Meccanica, Prof. Marina Cabrini, Università degli Studi di Bergamo (3 hours).
- 2016-2017 *Adjunct Lecturer* in the course “*Biomateriali*” (ING-IND 22) of Ingegneria Tecnologie per la Salute, Prof. Marina Cabrini, 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

Member of the Editorial Board

Materials MDPI (IF 3.748, Citescore 2021: 4.7, SJR 2021: 0.604, SNIP 2021: 1.137) Publisher MDPI (Switzerland), ISSN: 1996-1944

Acta Metallurgica Slovaca (Citescore 2020: 1.5, SJR 0.277, SNIP 0.622) Publisher SciCell s.r.o., ISSN: 1335-1532, e-ISSN: 1338-1156

Guest editor for the Special Issue 2022 "Metal Additive Manufacturing for Space: Processes, Properties and Applications" of the Journal Applied Sciences (IF 2.838, Citescore 2021: 3.7, SJR 2021: 0.507, SNIP 2021: 1.026) Publisher MDPI, E-ISSN: 2076-3417

Technical Skills

Materials Processing:

Laser Powder Bed Fusion (LPBF), also known as Selective Laser Melting (SLM) or Direct Metal Laser Sintering (DMLS). Certificates of advanced training on EOSINT M270/M280 system and on Concept Laser MLab R.

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

- 2022 CEEC-PCMS1 conference, talk on: "Additive Manufacturing for metals: Powder Bed Fusion (PBF) vs Directed Energy Deposition (DED) techniques", Split, Croatia, (26-30 Luglio 2022)
- 2022 In the EPMA (European Powder Metallurgy Association) Powder Metallurgy Summer School 2022 (20-24 June 2022), Ciudad Real, talk on "Additive Manufacturing for metals – LPBF & DED" (23rd June)
- 2021 Kosice Summit of Innovation and Technology KSIT 2021, talk on "Additive Manufacturing as enabling technology for Industry 4.0", Košice, Slovakia (11-12 November)
- 2020 In the Workshop - From 3D to 4D printing: a solution to unaddressed medical needs, within the I-RIM 3D @ Maker Fair 2020 web conference, talk on "Advances in Additive Manufacturing for Robotic Applications" (10th December)
- 2019 In the MAM Study days, Additive Manufacturing the Products (27-29 November), sponsored by Baker Hughes, GE Florence Learning Center, Florence, talk on "State of the Art of AM Products for aerospace turbines" (27th November)
- 2019 In the EPMA (European Powder Metallurgy Association) Powder Metallurgy Summer School 2019 (15-19 July 2019), Trento, talk on "Additive Manufacturing" (17th July)
- 2019 In the NIS Colloquium - project STAMP dissemination, Dipartimento di Chimica dell'Università di Torino, Prof. Livio Battezzati, talk on "Overview on Selective Laser Melting: equipment, alloy processing, critical aspects, innovative outlook, mechanical requirements" (14th February)

- 2019 In the *Corso di formazione per Intermediari* (operatori della Camera di Commercio e soggetti del Poli di Innovazione), *La trasformazione digitale: un'opportunità per le PMI*, organizzato da CSP all'interno del progetto SMART SPACE - Smart Manufacturing for Alpine Space SME's, Torino, talk on "Additive Manufacturing – enabling technology for Industry 4.0" (22nd January)
- 2018 *THERMEC'2018, International Conference on Processing & Manufacturing of Advanced Materials* Session E8: *Additive Manufacturing*, "3D Printing of Al, Ti and Ni based alloys by laser powder bed fusion", Paris, France (8-13 July)
- 2018 In the *EPMA (European Powder Metallurgy Association) Powder Metallurgy Summer School 2018 (2-6 July 2018)*, Vienna, talk on "Additive Manufacturing" (3rd July)
- 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 *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)
- 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" (9th May)
- 2015 *Aerospace & Defense Meetings 5th edition*, "Materials development produced by Selective Laser Melting (SLM) for aerospace applications", Turin, Italy (17-19 November) - INVITED
- 2015 *Nanotaly 1st edition*, "Additive Manufacturing for Robotic Components", Rome, Italy (21-24 September)
- 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)

Conferences Chairman & Member of the Technical Programme Committee

- 2022 *World PM2022 Congress & Exhibition*, in: "Session 15 : AM Beam based Technologies - PBF Process Optimisation", "Session 44 : AM Sinter based Technologies – Stereolithography" e "Session 50 : AM Beam based Technologies – Corrosion/Wear Aspects", Lyon, France (09-13 October)
- 2021 *Euro PM2021 Virtual Congress & Exhibition*, in: "Session 11: AM Beam Based Technologies: Hard Metals and Hard Materials" (18-22 October)
- 2020 *Euro PM2020 Virtual Congress*, in: "Session 23: Impurities in AM Powders" (5-7 October)
- 2018 *Euro PM2018 Congress & Exhibition*, in: "Session 48: AM Post Treatment" and "Session 54: AM Post Processing", Bilbao, Spain (14-18 October)
- 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)

Conferences with oral presentations

- 2019 *AAMS2019 Alloys for Additive Manufacturing Symposium*, "A method to process new alloys by Laser Powder Bed Fusion saving time and powders" Chalmers University of Technology, Gothenburg, Sweden (18-20 September)
- 2018 *Convegno Additive Manufacturing e controlli non distruttivi*, "Laser powder bed fusion of aluminum, titanium and nickel based alloys: example of applications", organized by Ordine degli Ingegneri della Provincia di Torino in collaboration with Associazione Italiana Prove non Distruttive (AIPnD), Torino, Italy (21-22 November)
- 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)
- 2014 *Workshop Strategic Research Cluster in Horizon 2020*, ASI (Italian Space Agency), Tor Vergata, Rome, Italy (13 January)
- 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

- 2023 Bosio F., Lagalante I., Manfredi D., Lombardi M. *Bespoke multi-step homogenization heat-treatment for a laser powder bed fused AlSi10Mg4Cu alloy synthesized via in-situ alloying*. *Materials Characterization* 195, 112506, DOI: 10.1016/j.matchar.2022.112506
- 2022 Marinucci F., Aversa A., Manfredi D., Lombardi M., Fino P. *Evaluation of a Laboratory-Scale Gas-Atomized AlSi10Mg Powder and a Commercial-Grade Counterpart for Laser Powder Bed Fusion Processing*. *Materials* 15 (21), 7565, DOI: 10.3390/ma15217565

- 2022 Cabrini, M., Carrozza A., Lorenzi S., Pastore T., Testa C., Manfredi D., Fino P., Scenini F. *Influence of surface finishing and heat treatments on the corrosion resistance of LPBF-produced Ti-6Al-4V alloy for biomedical applications*. Journal of Materials Processing Technology 308, 117730, DOI: 10.1016/j.jmatprotec.2022.117730
- 2022 Chiolerio A., Dehshibi M.M., Manfredi D., Adamatzky A. *Living wearables: Bacterial reactive glove*. BioSystems 218, 104691, DOI: 10.1016/j.biosystems.2022.104691
- 2022 Carrozza A., Aversa A., Mazzucato F., Bassini E., Manfredi D., Biamino S., Valente A., Fino P. *An investigation on the effect of different multi-step heat treatments on the microstructure, texture and mechanical properties of the DED-produced Ti-6Al-4V alloy*. Materials Characterization 189, 111958, DOI: 10.1016/j.matchar.2022.111958
- 2022 Calignano F., Manfredi D., Marola S., Lombardi M., Iuliano L. *Production of Dense Cu-10Sn Part by Laser Powder Bed Fusion with Low Surface Roughness and High Dimensional Accuracy*. Materials 15 (9), 3352, DOI: 10.3390/ma15093352
- 2022 Martucci A., Aversa A., Manfredi D., Bondioli F., Biamino S., Ugues D., Lombardi M., Fino P. *Low-Power Laser Powder Bed Fusion Processing of Scalmalloy®*. Materials 15 (9), 3123, DOI: 10.3390/ma15093123
- 2022 Bosio F., Manfredi D., Lombardi M. *Homogenization of an Al alloy processed by laser powder bed fusion in-situ alloying*. Journal of Alloys and Compounds, 904, 164079, DOI: 10.1016/j.jallcom.2022.164079
- 2022 Jandaghi M.R., Aversa A., Manfredi D., Calignano F., Lavagna L., Pavese M. *In situ alloying of AlSi10Mg-5 wt% Ni through laser powder bed fusion and subsequent heat treatment*. Journal of Alloys and Compounds, 904, 164081, DOI: 10.1016/j.jallcom.2022.164081
- 2021 Bosio F., Fino P., Manfredi D., Lombardi M. *Strengthening strategies for an Al alloy processed by in-situ alloying during laser powder bed fusion*. Materials & Design, 212, 110247, DOI: 10.1016/j.matdes.2021.110247
- 2021 Gobber F.S., Fracchia E., Spotorno R., Fais A., Manfredi D. *Wear and Corrosion Resistance of AlSi10Mg-CP-Ti Metal-Metal Composite Materials Produced by Electro-Sinter-Forging*. Materials, 14(22), 6761, DOI: 10.3390/ma14226761
- 2021 Beccaria M., Addamo G., Orefice M., Peverini O.A., Manfredi D., Calignano F., Virone G., Pirinoli P. *Enhanced Efficiency and Reduced Side Lobe Level Convex Conformal Reflectarray*. Applied Sciences (Switzerland), 11 (21), 9893, DOI: 10.3390/app11219893
- 2021 Cabrini M., Lorenzi S., Testa C., Carugo F., Pastore T., Manfredi D., Biamino S., Marchese G., Parizia S., Scenini F. *Stress Corrosion Cracking of Additively Manufactured Alloy 625*. Materials, 14(20), 6115, DOI: 10.3390/ma14206115
- 2021 Vanzetti M., Virgillito E., Aversa A., Manfredi D., Bondioli F., Lombardi M., Fino P. *Short Heat Treatments for the F357 Aluminum Alloy Processed by Laser Powder Bed Fusion*. Materials, 14(20), 6157, DOI: 10.3390/ma14206157
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Book chapters

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