

Publications

The A2M2TECH project actively contributes to the advancement of scientific knowledge through high-quality peer-reviewed publications. Early Stage Researchers and supervisors publish their research outcomes in leading international journals and conferences, addressing key topics in advanced materials and additive manufacturing. These publications reflect the scientific progress achieved within the project and support the dissemination of innovative methodologies, experimental findings, and technological developments to the broader research community.

The table below provides an overview of the publications produced within the framework of the A2M2TECH project.

Type of scientific output/Event	Title of the scientific publication/presentation	Authors*	Full title of the journal or equivalent	Publisher	DOI Number/Link
Article in journal	A Review on Laser Beam Shaping Application in Laser Powder Bed Fusion	Bakhtari, Ahmad Reshad , Hüseyin Kürşad Sezer, Olcay Ersel Canyurt, Oğulcan Eren, Mussadiq Shah , and Sundar Marimuthu.	Advanced Engineering Materials	Wiley-VCH	https://doi.org/10.1002/adem.202302013
Article in journal	A systematic review of Inconel 939 alloy parts development via additive manufacturing process.	Raza, Syed Abbas , Olcay Ersel Canyurt, and Huseyin Kursad Sezer.	Heliyon	Cell Press, a division of Elsevier	https://doi.org/10.1016/j.heliyon.2024.e25506
Publication in conference proceeding	Biodegradable Magnesium Bone Plates; Simulation-Based Predictive Model for Controlled Degradation	Muhammad Usama Zaheer , Cenk Aktaş, Yogendra Kumar Mishra, Mehmet Fatih Aycan	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	Vat photopolymerization-based 3D printing of polymer nanocomposites: current trends and applications	Shah, Mussadiq, Abid Ullah, Kashif Azher , Asif Ur Rehman, Wang Juan, Nizami Aktürk, Celal Sami Tüfekci, and Metin U. Salamci.	RSC advances	Royal Society of Chemistry (RSC)	https://doi.org/10.1039/D2RA06522C
Publication in conference proceeding	From Design to Smile: Leveraging AM and Topological Optimization for Jaw Implant Solutions	Muhammad Hassan Razzaq , Cenk Aktaş, Yogendra Kumar Mishra, Mehmet Fatih Aycan	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	The Influence of Nanoparticle Dispersions on Mechanical and Thermal Properties of Polymer Nanocomposites Using SLA 3D Printing	Shah, Mussadiq, Abid Ullah, Kashif Azher , Asif Ur Rehman, Nizami Akturk, Wang Juan, Celal Sami Tüfekci, and Metin Uymaz Salamci	Crystals	MDPI	https://doi.org/10.3390/cryst13020285
Article in journal	Corrosion in laser powder bed fusion AlSi10Mg alloy	Laieghi, Hossein, Varma Kvvssn, Muhammad Muteeb Butt , Peyman Ansari, Metin U. Salamci, Albert E. Patterson, and Elmas Salamci	Engineering Reports	Wiley-VCH	https://doi.org/10.1002/eng2.12984

Publication in conference proceeding	Effect of the Orientation of the Trabecular Structure on the Comparison Strength of Bone for Future Studies	Ahmed Jawad , Arif Balcı, Yogendra Kumar Mishra, Yusuf Usta	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	Binder jetting of SS316L: a computational approach for droplet-powder interaction	Ur Rehman, Asif, Kashif Azher , Abid Ullah , Celal Sami Tüfekci, and Metin Uymaz Salamci.	Rapid Prototyping Journal	Emerald Publishing Limited	https://doi.org/10.1108/RPJ-08-2022-0264
Publication in conference proceeding	Synthesis of 2D MoS ₂ Polycrystalline for Electro-optical Applications	Muhammad Adnan Saeed , Süleyman Özçelik, Metin U. Salamci	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Publication in conference proceeding	A Study on Beam Shaping Effects on The Mechanical Properties and Residual Stresses in Parts Processed Using Selective Laser Melting	Ahmad Reshad Bakhtari , Hüseyin Kürşad Sezer, Olcay Ersel Canyurt	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	A review on vibration characteristics of additively manufactured metal alloys	Azher , Kashif , Mussadiq Shah , Ahmad Reshad Bakhtari , Gustavo M. Castelluccio, Celal Sami Tüfekci, Andrea Cini, Nizami Akturk, and Metin U. Salamci.	Advanced Engineering Materials	Wiley-VCH	https://doi.org/10.1002/adem.202301650
Article in journal	Additive manufacturing of Al ₂ O ₃ ceramics with MgO/SiC contents by laser powder bed fusion process	Ur Rehman, Asif, Abid Ullah , Tingting Liu, Rashid Ur Rehman, and Metin U. Salamci.	Frontiers in Chemistry	Frontiers Media S.A.	https://doi.org/10.3389/fchem.2023.1034473
Publication in conference proceeding	Corrosion Behavior in SLM-Produced AlSi10Mg Alloy: Evaluating Process Parameters Effect	Hossein Laieghi , Fahrettin Ozturk, Hakan Yavas, Burcu Arslan Hamat, Peyman Ansari, Metin U Salamci, Elmas Salamci	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1

Publication in conference proceeding	Next Generation Eco-Materials Revolution: CO ₂ Emissions Reduction via Lattice-Structured Additive Manufactured Lever Arms	M. Usman Sikandar , Roozbeh Neshani	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Publication in conference proceeding	A Case Study in Deep Drawing Process: Numerical Simulation and Analysis of Material Behavior and Hardening Models	M. Usman Sikandar, Muhammad Usama	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Publication in conference proceeding	From Blueprint to Greenprint: A Case Study on CO ₂ Footprint assessment in Product Design & Manufacturing (PDM)	M. Usman Sikandar , Muhammad Saad	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	A review on vibration characteristics of additively manufactured metal alloys	Azher, Kashif, Mussadiq Shah, Ahmad Reshad Bakhtari , Gustavo M. Castelluccio, Celal Sami Tüfekci, Andrea Cini, Nizami Akturk, and Metin U. Salamci.	Advanced Engineering Materials	Wiley-VCH	https://doi.org/10.1002/adem.202301650
Article in journal	Additive Manufacturing-Nanotechnology Nexus	Sikandar, M. Usman , and Osman Barış Malcıoğlu	Additive Manufacturing-Nanotechnology Nexus	SSRN (Social Science Research Network)	https://doi.org/10.2139/ssrn.4640831
Publication in conference proceeding	Investigating the Impact of Recoater Speed on Micron-Sized Powder Dispersion on the Substrate in Selective Laser Melting (SLM) via DEM	Varma Kvvssn , Peyman Ansari, Metin U. Salamci, Elmas Salamci, Hüseyin Kızıl	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	In the Realm of Hyperelasticity: Constitutive Modeling of Rubber using Lion's Model	Sikandar, M. Usman , Rameez Ul Haq, Ali Mehraza, and Göktuğ Tekcan.	HAL Archive	HAL Archive	https://hal.science/hal-04328089/

Publication in conference proceeding	Application of Micro Computed Tomography (μ -CT) Method for Defect Detection in AlSi10Mg Parts Produced with SLM Technology	Zia Uddin , Huseyin Kizil	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Publication in conference proceeding	Defect Analysis and Surface Roughness Characterization of Additively Manufactured Samples Using Computer Tomography	Muhammad Muteeb Butt , Peyman Ansari, Hüseyin Kızıll	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Publication in conference proceeding	Defect Analysis of Additively Manufactured AlSi10Mg Samples Using Different Process Parameters in a Single Specimen	Mussadiq Shah, Mutteb Butt , Nizami Akturk, Celal Sami Tufekci, Metin U. Salamci	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Publication in conference proceeding	Effect of Heat Treatment on The Energy Absorption and Ductility of The Imperfect BCC Lattice Structures	Muhammad Arslan Bin Riaz , Mustafa Güden, Hakan Yavaş	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1
Article in journal	Recent progress in additive manufacturing of 7XXX aluminum alloys	Kvssn, Varma, Muhammad Muteeb Butt, Hossein Laieghi, Zia Uddin , Elmas Salamci, Duck Bong Kim, and Hüseyin Kizil.	The International Journal of Advanced Manufacturing Technology	Springer	https://doi.org/10.1007/s00170-025-15415-z
Article in journal	Understanding the Effects of Manufacturing Attributes on Damage Tolerance of Additively Manufactured Parts and Exploring Synergy Among Process-Structure-Properties. A Comprehensive Review	Uddin, Zia, Muhammad Muteeb Butt, Varma Kvssn , Metin U. Salamci, and Hüseyin Kizil.	Engineering Reports	Wiley-VCH	https://doi.org/10.1002/eng2.13020
Publication in conference proceeding	The Effect of Volumetric Energy Density on The Mechanical Behavior of AlSi10Mg Alloy Manufactured by Selective Laser Melting	Mian imran , Mustafa Güden, Çetin Bakılcı, Peyman Ansari, Metin U. Salamci, İlhan Şen, Alper Taşdemirci	Proceedings of the 1st International Conference on Advanced Materials and Advanced Manufacturing (A2M2C-1)	Gazi University - EKTAM	https://a2m2tech.org.tr/Home/A2M2C1

Article in journal	Fatigue performance in additively manufactured metal alloys	Butt, Muhammad Muteeb, Hossein Laieghi, Varma Kvvssn, Zia Uddin, Mussadiq Shah, Peyman Ansari, Metin U. Salamci, Albert E. Patterson, and Hüseyin Kizil.	Progress in Additive Manufacturing	Springer	https://doi.org/10.1007/s40964-024-00738-2
Article in journal	Investigation and validation of the flow stress equation and damage model parameters of an electron beam melted Ti6Al4V alloy with a martensitic phase	Mustafa Güden, Arslan Bin Riaz, Ahmet Kaan Toksoy, Murat Yıldıztekin, Hacer İrem Erten, Gülден Çimen, Burak Hızlı, Burçin Seven Çellek, Efe Güleç, Alper Taşdemirci, Hakan Yavaş, Sertaç Altınok	Materials Science and Engineering: A	Elsevier	https://doi.org/10.1016/j.msea.2023.145590
Article in journal	A review of the experimental and numerical studies on the compression behavior of the additively produced metallic lattice structures at high and low strain rates	Riaz, Muhammad Arslan Bin, and Mustafa Güden	Defence Technology	Elsevier	https://doi.org/10.1016/j.dt.2025.01.003
Article in journal	Additive Manufacturing for Biomedical Bone Implants: Shaping the Future of Bones	Muhammad Hassan Razzaq, Muhammad Usama Zaheer, Humaira Asghar, O. Cenk Aktaş, Mehmet Fatih Aycan, Yogendra Kumar Mishra	Materials Science and Engineering: R: Reports	Elsevier	https://doi.org/10.1016/j.mser.2025.100931
Article in journal	Mathematical approaches for track analysis and process optimization in additive manufacturing	Alishavandi, Mahdi, Rahmi Ünal, and Metin Uymaz Salamci	Communications Materials	Nature Publishing Group	https://doi.org/10.1038/s43246-025-00862-8
Article in journal	Correlation of LPBF process parameters and heat treatment with the corrosion behavior of AlSi10Mg alloy	Hossein Laieghi, Muhammad Muteeb Butt, Varma Kvvssn, Ameerq Farooq, Peyman Ansari, Metin U. Salamci, Elmas Salamci	Progress in Additive Manufacturing	Springer	https://doi.org/10.1007/s40964-025-01238-7
Article in journal	The Impact of As-Built Surface Characteristics of Selective-Laser-Melted Ti-6Al-4V on Early Osteoblastic Response for Potential Dental Applications	Razzaq, Muhammad Hassan, Olugbenga Ayeni, Selin Köklü, Kagan Berk, Muhammad Usama Zaheer, Tim Tjardts, Franz Faupel et al	Journal of Functional Biomaterials	MDPI	10.3390/jfb16070230
Article in journal	AI-Assisted Design and Evaluation of SLM-Ti64 Implants for Enhanced Bone Regeneration	Zaheer, Muhammad Usama, Muhammad Hassan Razzaq, Mehmet Fatih Aycan, and Yogendra Kumar Mishra.	Advanced Healthcare Materials: e03154.	Wiley	https://doi.org/10.1002/adhm.202503154
Article in journal	Nanomaterial-engineered fluids in cooling Systems: From preparation to performance—A comprehensive review	Fatemeh Sadat Mirsafi, Muhammad Usama Zaheer, Elham Chamanehpour, Mustafa K. Ismael, Nicolas Oliveira Decarli, Gokhan Gurur Gokmen, Tamer Akan, Duygu Kisla, Horst-Günter Rubahn, Yogendra Kumar Mishra, Till Leibfner	Renewable and Sustainable Energy Reviews	Elsevier	https://doi.org/10.1016/j.rser.2025.116309

Article in journal	Novel strut-based mechanical analysis: flow stress determination of electron beam melt (EBM) lattice structures	Muhammad Arslan Bin Riaz , Hacer İrem Erten & Mustafa Güden	Progress in Additive Manufacturing	Springer	https://doi.org/10.1007/s40964-025-01354-4
Article in journal	Machine Learning Driven Prediction and GUI Based Optimization of Quasi-Static Mechanical Properties in SLM Fabricated Ti6Al4V Alloy	Muhammad Muteeb Butt , Sidra Rashid, Mehmood ul Haq, Ayyaz Mustafa, Arshad Iqbal, Hossein Laieghi , Varma KVVSSN, Metin U.Salamci, Enrico Salvati, Hüseyin Kızıl	International Journal of Precision Engineering and Manufacturing	Springer	https://doi.org/10.1007/s12541-025-01360-0
Article in journal	Toward novel AM feedstocks: Ultrasonically atomized 7075 and Al-Zn-Mg-Cu-Co-Cr-Mo powders	Kvssn, Varma, Hossein Laieghi, Muhammad M. Butt , Peyman Ansari, Metin U. Salamci, Elmas Salamci, and Hüseyin Kızıl.	Powder Technology	Elsevier	https://doi.org/10.1016/j.powtec.2025.121985
Article in journal	Characterization of Defect Distribution in an Additively Manufactured AlSi10Mg as a Function of Processing Parameters and Correlations with Extreme Value Statistics	Butt, Muhammad Muteeb, Varma Kvssn, Hossein Laieghi, Zia Uddin , Peyman Ansari, E. Kıvanç Sadak, Can Barış Toprak, Hüseyin Kızıl, and Enrico Salvati.	Advanced Engineering Materials	Wiley	https://doi.org/10.1002/adem.202500641
Article in journal	Engineered surfaces for biomedical implants: advances in coatings, materials, and techniques	Muhammad Usama ZAHEER, Muhammad Hassan RAZZAQ , Emerson COY, Mehmet Fatih AYCAN, Yogendra Kumar MISHRA	Progress in Biomedical Engineering	IOP Publishing	https://doi.org/10.1088/2516-1091/ae4d91
Article in journal	Static and dynamic compression of a hybrid TPMS structure: effects of SLM process parameters	Mian Imran , Alper Taşdemirci, İlhan Şen, Çetin Bakıcı, Peyman Ansari, Metin U. Salamci & Mustafa Güden	Progress in Additive Manufacturing	Springer Nature	https://doi.org/10.1007/s40964-026-01563-5
Article in journal	A Buckingham-Pi dimensionless analysis for melt pool stability and defect prediction in additive manufacturing	Alishavandi, Mahdi , Rahmi Ünal, and Metin U. Salamci	Additive Manufacturing Letters	Elsevier	https://doi.org/10.1016/j.addlet.2026.100366
International Conference	Understanding Mixing Dynamics in SLM-based Additive Manufacturing A Multiphysics Approach with AA7075 Alloy and Titanium	Varma Kvssn, Hossein Laieghi , Peyman Ansari, Metin U Salamci, Elmas Salamci, Hüseyin Kızıl	FLOW-3D World Users Conference 2024	-	-
International Conference	A Computational Fluid Dynamics Model for Selective Laser Melting of AlSi10Mg: Exploring Melt Pool Dynamics	Zia Uddin, Muhammad Muteeb Butt , Peyman Ansari, Metin U Salamci, Hüseyin Kızıl	FLOW-3D World Users Conference 2024	-	-
International Conference	Integrating Extreme Value Analysis with Process Parameter Indicators for Characterizing and Optimizing Defect Distributions in Additively Manufactured AlSi10Mg	Muhammad Muteeb Butt , Metin U. Salamci, Hüseyin Kızıl, Enrico Salvati	5th International Symposium on Fatigue Design and Material Defects	-	-

International Conference	Correlation between the microstructural texture and mechanical properties of EBM produced Ti6Al4V	Arslan Bin Riaz , Mustafa Guden	5th International Conference on Electron Beam Additive Manufacturing	-	-
International Conference	Exploring the Mechanical and Microstructural Properties of Ti10V5Al30Nb20Mo25Cu10 High Entropy Alloy	Emre Gunes , Yunus Kalay	TMC Conference Attending 2024	-	-
International Conference	Development and Characterization of an Ultrastrong Single-Phase High Entropy Alloy with Enhanced Ductility	Emre Gunes , Yunus Kalay	TMC Conference Attending 2025	-	-
International Conference	Correlating corrosion behaviour of AlSi10Mg with process parameter, microstructure, defects and heat treatment	Hossein Laieghi, Muhammad Muteeb Butt, Varma Kvvssn , Ameerq Farooq, Peyman Ansari, Metin U. Salamci, Elmas Salamci	EUROCORR 2024 Congress	-	-
International Conference	Synergistic Drivers of Intergranular Corrosion in SLM AlSi10Mg Alloys	Hossein Laieghi, Muhammad Muteeb Butt, Varma Kvvssn , Ameerq Farooq, Peyman Ansari, Metin Salamci, Elmas Salamci	14th symposium on Electrochemical Methods in Corrosion Research (EMCR 2025)	-	-
International Conference	Investigating the Effects of Volumetric Energy Density (VED) on Single-Track Formation for Inconel 718: A Parametric Study and Experimental Validation	Syed Abbas Raza , Olcay Ersel Canyurt	FLOW-3D World Users Conference 2024	-	-
International Conference	Cracking Phenomena in Laser Powder Bed Fusion of IN738LC Ni-base Superalloy	Mahdi Alishavandi , Rahmi Unal, and Metin Uymaz Salamci	5th International Conference on Cracking Phenomena in Welding and Additive Manufacturing	-	-
International Conference	Influence of Normalized Enthalpy on Porosity Formation in LPBF-Fabricated IN738LC	Mahdi Alishavandi , Rahmi Unal, and Metin Uymaz Salamci	Symposium T: "Smart materials for nanoelectronics – nanophotonics & PCAM Summer School 2025,"	-	-
International Conference	Nanoscale Phase Evolution and Ductility Enhancement in BCC High-Entropy Alloys through Spinodal Decomposition	Emre Gunes , Yunus Kalay	TMC Conference Attending 2026	-	-

Patents

In addition to scientific publications, the A2M2TECH project promotes innovation and technology transfer through intellectual property generation. The research activities conducted within the project aim not only to expand scientific knowledge but also to develop practical solutions and technological advancements with industrial relevance. As a result, several inventions emerging from the project have been protected through patent applications.

The table below presents the patents and patent applications associated with the A2M2TECH project.

Name/Surname	ESR No.	Applied / Registered Patent Details
Mahdi Alishavandi	08	Referance No: 15934/214 Application No: 2024/015807 “Mathematical methods for tracks analysis and a system for melt pool dynamics in additive manufacturing.” Gazi Univetsity, Mahdi Alishavandi, Rahmi Ünal, Metin U. Salameı
		“Mathematical methods for tracks analysis and a system for melt pool dynamics in additive manufacturing”, The application was filed on 05.11.2025 with application number PCT/TR2025/051411, using priority number 2024/015807.
Emre Güneş	14	Applied: Low-cost, cobalt-free, iron-rich complex concentrated alloy with superior mechanical and magnetic properties.
V Venkata Satya Surya Nagendra Varma Kakarlapudi	18	Applied: Novel Aluminum alloy powder for Laser based Additive Manufacturing Application