

LIST OF PRESENTATIONS

21 November 2024

Hall A - Opening Session

8.00 – 8.30 Registration

Opening Session and Welcome

8.30 – 9.00 Hülya Gedik, Chair of the Board of the Trustees, İstanbul Gedik University
Prof. Dr. Ahmet Kesik, Rector of İstanbul Gedik University
Prof. Dr. Mustafa Koçak, Chair WAM 2023 International Conference

Keynote Lecture

9.00 – 9.30 **Wire + Arc Additive Manufacture (WAAM) Qualification – The Last Remaining Challenge for Widespread Industrial Applications?**
Stewart Williams, Cranfield University, UK (INVITED LECTURE)

Solid-State Joining of Additive Manufactured Metals for Lightweight Applications

9.30 – 10.00 Sergio Amancio, Graz University of Technology, Austria
IIW 2024 Halil Kaya Gedik Award Winner (INVITED LECTURE)

10.00 – 10.30 COFFEE BREAK and POSTER SESSION

SESSION A1

Hall A - Advances in AM&WAAM Technologies - I

Chair: Prof. Dr. Mustafa Koçak, İstanbul Gedik University, TÜRKİYE

Towards a Digital Twin for Laser Metal Deposition

10.30 – 11.00 Peter Mayr and Stephan Hartmann, Technical University of Munich, Germany
(INVITED LECTURE)

Fitness-for-Purpose Based Acceptance Criteria for Distributed Discontinuities in Metallic AM Components

11.00 – 11.30 Pingsha Dong, University of Michigan, USA (INVITED LECTURE)

Increasing LPBF Machines Availability By Using Machine Tool Design Principles

11.30 – 12.00 Hashan Wijesundara, DMG MORI, Germany

Challenges in Welding of Additively Manufactured (WAAM and PBF LB) Aluminum Alloy Components

12.00 – 12.30 Rafael Nunes, K. Faes, W. Verlinde, W. D. Waele, M. Lezaack, A. Simar, Belgian Welding Institute, Belgium (INVITED LECTURE)

Recent Developments on Aerospace Applications of DED Technologies

12.30 – 13.00 Remzi Ecmel Ece, Turkish Aerospace Industries, Türkiye (INVITED LECTURE)

13.00 – 14.00 LUNCH BREAK and POSTER SESSION

SESSION A2**Hall A - Design and Applications of AM&WAAM Technologies - I****Chair:** Prof. Dr. Savaş Dilibal, İstanbul Gedik University, TÜRKİYE

- 14.00 – 14.30 **Titanium Titans – The Remarkable World of Aircraft Manufacturing and the WAAM Evolution**
Sebastian Recke, GEFERTECH GmbH, Germany (INVITED LECTURE)
- 14.30 – 15.00 **Mechanical Properties of Wire Plus Arc Additive Manufactured Steel, Stainless Steel and Nickel-Based Superalloys and Potential Challenges in Defect Assessment**
Yin Jin Janin, The Welding Institute (TWI), UK (INVITED LECTURE)
- 15.00 – 15.30 **WAAM of Multi-Material and Functionally Graded Structures and in-Situ Alloy Development Using Multi-Wire Mixing**
Jialuo Ding, WAAM3D, UK
- 15.30 – 16.00 **Effect of Cooling Cycles on Microstructure Formation in Wire Arc Additive Manufacturing**
Ozan Can Ozaner, R. Talemi, T. Tjahjowidodo, A. Sharma, Katholieke Universiteit Leuven, Belgium (INVITED LECTURE)
- 16.00 – 16.30 **COFFEE BREAK and POSTER SESSION**

SESSION A3**Hall A - Design and Applications of AM&WAAM Technologies - II****Chair:** Dr. Remzi Ecmel Ece, TAI, Ankara, TÜRKİYE

- 16.30 – 17.00 **Improving Printability of Large Directed Energy Deposition Components**
Alejandro Lázaro, Carretero, F., Olivieri, G., Escobar, E., Ramos, A., Robinson, C., MELTIO, Spain (INVITED LECTURE) (**ONLINE**)
- 17.00 – 17.30 **Keynote Lecture (ONLINE)**
Materials Design and Additive Manufacturing of Metal Matrix Composites
Ju Li, Massachusetts Institute of Technology, USA (INVITED LECTURE)
- 17.30 – 18.00 **A Multi-Laser Approach for In-Situ Thermo-Mechanical Treatment of Metals and Alloys**
Huang Sheng, Massachusetts Institute of Technology, USA (INVITED LECTURE)
- 18.00 – 18.30 **Design and Applications on SLM-based Additive Manufacturing of Shape Memory Alloys (ONLINE)**
Mohammad Elahinia, University of Toledo, USA (INVITED LECTURE)

SESSION B1**Hall B - Advances in Welding Technologies****Chair:** Prof. Dr. Güney Güven Yapıcı, Özyeğin University, TÜRKİYE

- 10.30 – 11.00 **Factors Affecting Arc Stability in Tandem Pulsed GMA Welding Process**
Tomoyuki Ueyama, OTC Daihen, Japan (INVITED LECTURE)
- 11.00 – 11.30 **Innovative Control of Robots for Manual Welding Application**
Shahram Sheikhi, Hamburg Technology University, Germany (INVITED LECTURE)
- 11.30 – 12.00 **Potentials of Handheld Laser Beam Welding**
Simon Jahn, IFW Jena, Germany (INVITED LECTURE)
- 12.00 – 12.30 **Innovative Welding Technologies for Enhancing Liquid Propulsion Systems**
Murat Yücel, ROKETSAN, Türkiye (INVITED LECTURE)
- 12.30 – 13.00 **Tailoring Laser Properties for Efficient Laser-Based Manufacturing**
Danijela Rostohar, Coventry University, UK (INVITED LECTURE)
- 13.00 – 14.00 **LUNCH BREAK and POSTER SESSION**

SESSION B2**HALL B – Testing and Characterization - I****Chair:** Assoc. Prof. Ulaş Yaman, METU, TÜRKİYE

- 14.00 – 14.30 **Fracture Toughness Characterization of Welds by Using Mini-CT Specimens: FRACTESUS Project Findings**
Sergio Cicero González, University of Cantabria, Spain (INVITED LECTURE)
- 14.30 – 15.00 **Severe Plastic Deformation for Post-Processing of Additive-Manufactured Alloys**
Güney Güven Yapıcı, Özyeğin University, Türkiye (INVITED LECTURE)
- 15.00 – 15.30 **Insights into Grain Structure Formation During Friction Stir Welding/ Processing of Metals and Alloys**
Akbar Heidarzadeh, M. Javidani, Rasoul Khajeh, Azarbaijan Shahid Madani University, Iran (INVITED LECTURE)
- 15.30 – 16.00 **Sandwich Welding Design: Improving Ballistic Resistance of High Hardness Armor Steels**
Ceren Çelik, Uğur Gürol, İstanbul Gedik University, Türkiye
- 16.00 – 16.30 **COFFEE BREAK and POSTER SESSION**

SESSION B3**HALL B – Testing and Characterization - II****Chair:** Dr. Ali İhsan Koruk, BOSAL Energy, Belgium

- Defense Industry Additive Manufacturing Roadmap**
16.30 – 17.00 Deniz Demirci, Secretariat of Defense Industries, Advanced Materials and Energy Program Manager, Türkiye (INVITED LECTURE)
- Recent Advances in the Manufacturing of Magnesium Components Using Directed Energy Deposition Techniques**
17.00 – 17.30 Gürel Çam, A. Günen, Iskenderun Technical University, Türkiye (INVITED LECTURE)
- Impact of Volumetric Energy Density on Mechanical Properties of Magnesium Alloy via Selective Laser Melting (ONLINE)**
17.30 – 18.00 Dhanesh G. Mohan, University of Sunderland, UK (INVITED LECTURE)
- Advanced In Situ Deformation Monitoring in Wire Arc Additive Manufacturing via Digital Image Correlation (ONLINE)**
18.00 – 18.30 Amir Kordijazi, A. Lanba, University of Southern Maine, USA
Savaş Dilibal, Doruk Gürkan, İstanbul Gedik University

22 November 2024**SESSION A4****Hall A - Advances in AM&WAAM Technologies - II****Chair:** Ozan Can Ozaner, KU Leuven, Belgium

- 8.30 – 9.00 **Impact and Potential of In-Situ Monitoring on the Development of Metal Laser Powder Bed Fusion (L-PBF) Technologies**
Aydın Yağmur, EOS GmbH, Additive Mind, Germany (INVITED LECTURE)
- 9.00 – 9.30 **A New Method to Control Thermal Behavior of WAAM: Active Heating via Infrared Technology (ONLINE)**
Oğuzhan Yılmaz, Gazi University, Türkiye (INVITED LECTURE)
- 9.30 – 10.00 **Utilization of Additive Manufacturing Methods in the Energy and Emission Sectors**
Ali İhsan Koruk, BOSAL Energy, Belgium (INVITED LECTURE)
- 10.00 – 10.30 **Additive Manufacturing and Biomedical Applications**
Binnur Sagbas, Yıldız Technical University, Türkiye (INVITED LECTURE)
- 10.30 – 11.00 **COFFEE BREAK and POSTER SESSION**

SESSION A5**HALL A – Additive Manufacturing Applications - I****Chair:** Assoc. Prof. Binnur Sagbas, Yıldız Technical University, Türkiye

- 11.00 – 11.30 **Purge Gas for Welding of Stainless-Steel Pipes: Must or Luxury**
Emel Taban, Kocaeli University, Türkiye (INVITED LECTURE)
- 11.30 – 12.00 **Additive Manufacturing Designers: A Comparison Between IAMQS Professional Profiles and Relevant ISO Standards**
Pedro Catarino, EWF, Portugal (INVITED LECTURE)
- 12.00 – 12.30 **Overview of Laser Shock Peening Processing for Improvements of Metal Additive Manufactured Part at HiLASE Centre**
Sanin Zulic, Hilase Center, Czechia
- 12.30 – 13.00 **High-Speed Laser-Directed Energy Deposition of Ti/Al Multi-Material Component (ONLINE)**
Dongsheng Wu, H. Komen, M. Tanaka, Osaka University, Japan
J. Sun, Z. Li, Shanghai Jiao Tong University, China
- 13.00 – 14.00 **LUNCH BREAK and POSTER SESSION**

SESSION A6**HALL A – Additive Manufacturing Applications-II****Chair:** Yin Jin Janin, TWI, UK

- 14.00 – 14.30 **Understanding the Thermally Induced Martensitic Transformation in Nitinol Manufactured via Electron Beam Powder Bed Fusion**
Tymur Sabirov, A. Lanba, University of Maine, USA
S. Dilibal, G. Peduk, İstanbul Gedik University Türkiye
- 14.30 – 15.00 **Material Selection & Development, and Metal Additive Manufacturing Process for AR/MR/VR Products**
Ustun Duman, Meta Platforms, California, USA (INVITED LECTURE)
- 15.00 – 15.30 **Metal Additive Manufacturing and its Unique Corrosion Mechanisms (ONLINE)**
Iris De Graeve, Vrije Universiteit Brussel, Belgium (INVITED LECTURE)
- 15.30 – 16.00 **Determination Of Solid Particle Erosion Wear Behavior of Aircraft Turbine Blades Specific to Additive Manufacturing Orientation Effects**
Mehmet Esat Aydın, M. Demirci, M. Bağcı, Konya Technical University, Türkiye
- 16.00 – 16.30 **COFFEE BREAK and POSTER SESSION**

SESSION A7**HALL A – Additive Manufacturing Software and Applications****Chair:** Assoc. Prof. Atilla Savaş, Piri Reis University, Türkiye

- 16.30 – 17.00 **Digitized Quality Inspection in Welding Production Role and Significance of the Software for the Development of Additive Manufacturing Technology**
Zuheir Barsoum, KTH Royal Institute of Technology, Sweden (INVITED LECTURE)
- 17.00 – 17.30 **The Significant Role of Software Development for the Additive Manufacturing Technology**
Jonas Zielinski, Moduleworks GmbH, Germany (INVITED LECTURE)
- 17.30 – 18.00 **Non-Destructive Evaluation Approaches for Wire Arc Additive Manufacturing**
Ulaş Yaman, METU, Türkiye (INVITED LECTURE)
- 18.00 – 18.30 **Investigating Slag Accumulation in Wire Arc Additive Manufacturing of High Strength Low Alloy Steel**
Malan Jayawickrama, Mattias Igestrand, Nicolas Coniglio, Paul Kah University West, Sweden
Arts Et Métiers Institute of Technology, France

SESSION B4**HALL B – Properties of Welding and AM Parts - I****Chair:** Prof. Dr. Zuheir Barsoum, KTH Sweden

- 8.30 – 9.00 **Local Approach for Fracture Assessment of Components with Heterogeneity of Mechanical Properties (ONLINE)**
Mitsuru Ohata, Osaka University, Japan (INVITED LECTURE)
- 9.00 – 9.30 **Engineering Assessment Procedure of the Local Thin Areas (LTA) in Welded Pipelines**
Fikri Başar Yalçiner, NMDC Group, Abu Dhabi
Mustafa Koçak, İstanbul Gedik University, Türkiye
- 9.30 – 10.00 **Breaking the Boundaries of Additive Manufacturing: Additive Friction Stir Deposition**
Evren Yasa, University of Sheffield, UK (INVITED LECTURE)
- 10.00 – 10.30 **The Influence of Heat Input and Cooling Time on the Residual Stress During Wire Arc Additive Manufacturing**
Atilla Savaş, Piri Reis University, Türkiye
- 10.30 – 11.00 **COFFEE BREAK and POSTER SESSION**

SESSION B5**HALL B – Properties of Welding and AM Parts - II****Chair:** Prof. Dr. Gürel Çam, İskenderun University, TÜRKİYE

- 11.00 – 11.30 **Application of Resistance Spot Welding in Cold-Formed Steel Structures**
Viorel Ungureanu, Ioan Both, J. Hulka, A. Popescu, S. Saraolu, A. A. Cristian, Politehnica University Timisoara, Romania
- 11.30 – 12.00 **Effect of Filler Metals on Strength and Toughness of High Hardness Armor Steel**
Recep Murat Kurt, Uğur Gürol, Mustafa Koçak, İstanbul Gedik University, Türkiye and VESUVIUS, Türkiye, M. Tümer, Kocaeli University, Türkiye
- 12.00 – 12.30 **Potential of Process Gases for the WAAM to Increase Quality and Productivity**
Çerkez Kaya, Air Liquide Deutschland GmbH, Germany
- 12.30 – 13.00 **Advanced Process Modeling and Simulation of Multi-Material Directed Energy Deposition**
Emre Osmanoglu and Peter Mayr, Technical University of Munich, Germany
- 13.00 – 14.00 **LUNCH BREAK and POSTER SESSION**

SESSION B6**HALL B – Additive Manufacturing - I****Chair:** Akbar Heidarzadeh, Azarbaijan Shahid Madani University, Iran

- 14.00 – 14.30 **Design for Material Properties of Additively Manufactured Metals Using Topology Optimization**
Can Ayas, Delft University of Technology, The Netherlands (INVITED LECTURE)
- 14.30 – 15.00 **Development Of Fast-Paced Modular Microsatellite Production By Additive Manufacturing**
Sertaç Altınok, Turkish Aerospace Ind. Company, Türkiye (INVITED LECTURE)
- 15.00 – 15.30 **Enhancing Material Performance: Evaluating Shot Peening and Laser Peening Processes for Industrial Applications (INVITED LECTURE) (ONLINE)**
Simge Gençalp, Manisa Celal Bayar University, Türkiye
- 15.30 – 16.00 **Metallic Additive Manufacturing: Opportunities and Challenges for Passive Microwave Components in Telecommunications and Defense**
Bülent Alıcıoğlu, Asartech ARGE Tasarım Mühendislik, Türkiye
- 16.00 – 16.30 **COFFEE BREAK and POSTER SESSION**

SESSION B7**HALL B – Additive Manufacturing - II****Chair:** Dr. Sertaç Altınok, Turkish Aerospace Ind. Company, Türkiye

- 16.30 – 17.00 **Enhancing Texture in High Entropy Alloys with Nb: In-Situ Synthesis and Microstructural Insights via Laser Powder Bed Fusion**
Isaqueo A. B. Moura, G. G. Ribamar, J. Shen, W. Zhang, T. S. Nunes, F. Zhang, J. P. Oliveira, Universidade NOVA de Lisboa, Portugal
- 17.00 – 17.30 **Welding and Characterization of P355GH Steel Used in Pressure Vessels**
Ismail Oguzhan Ayhan, Hakan Ateş, Gazi University, Ankara, Türkiye
- 17.30 – 18.00 **A Method for Detecting Bead Geometry of Thin-Wall Structural Aviation Components in Wire Arc Additive Manufacturing (ONLINE)**
Rostislav Palivoda, Transport and Telecommunication Institute, Latvia
- 18.00 – 18.30 **Thermal Modeling of Tungsten Inert Gas Wire Arc Additive Manufacturing of Ti-6Al-4V Alloy**
Mustafa Çağrı Özkader, Öncü Akyıldız and Cengiz Baykasoğlu, Hitit University, Ankara, TÜRKİYE

POSTER PRESENTATIONS

Crack Growth Resistance Research on Selective Laser Melting Manufactured Ti-6Al-4V Components: Effects of Post Heat Treatment and Build Orientation

Yun Hu, M. Ling, K. Nikbin, J. Xi, Nanchang University, China

Defect Assessment for Welded Structures using BS 7910 /FITNET and API 579 Procedures: Practical Examples

Fikri Başar Yalçın and Mustafa Koçak, NMDC Group, Abu Dhabi and İstanbul Gedik University, Türkiye

Development of a 4-Axis CNC Rotary Friction Welding Machine

Sinan Dizge, Dizge Mekatronik, Türkiye

Investigating Topology Optimization and Additive Manufacturing Processes of Engine Bracket

Kazım Özek, BMC POWER Engine and Control Technologies, Türkiye

Binnur Sagbas, Yıldız Technical University, Türkiye

Investigation on the Similar and Dissimilar Weld Joints Between WAAM Parts and Rolled Steel Plate using SG3 Solid Wire

Hüseyin Yavaş, Nur İsmet, Rabia Yağmur Aksoy, Abdullah Baran Aytekin, Serhat Yakar, Mustafa Koçak, İstanbul Gedik University and Gedik Welding, İstanbul, Türkiye

Investigation on the Similar and Dissimilar Weld Joints Between WAAM Parts and Rolled Steel Plate using Elcor M70 Metal Cored Wire

Nur İsmet, Rabia Yağmur Aksoy, Hüseyin Yavaş, Abdullah Baran Aytekin, Serhat Yakar, Mustafa Koçak, İstanbul Gedik University and Gedik Welding, Türkiye

Investigation on the Similar and Dissimilar Weld Joints Between WAAM Parts and Armor Steel Plate using Elcor ER110 Metal Cored Wire

Fatih Kaymak, Ozan Çoban, Uğur Gürol, Mustafa Koçak, İstanbul Gedik University, Türkiye

Investigation on the Similar and Dissimilar Weld Joints Between WAAM Parts and Rolled High Strength Steel Plate using Elcor ER110 Metal Cored Wire

Rabia Yağmur Aksoy, Nur İsmet, Hüseyin Yavaş, Abdullah Baran Aytekin, Serhat Yakar, Mustafa Koçak, İstanbul Gedik University and Gedik Welding, Türkiye

Investigation on the Similar and Dissimilar Weld Joints Between WAAM Parts and Rolled Stainless Steel Plate using SS308 Wire

Abdullah Baran Aytekin, Nur İsmet, Hüseyin Yavaş, Rabia Yağmur Aksoy, Serhat Yakar, Mustafa Koçak, İstanbul Gedik University and Gedik Welding, Türkiye

Mechanical and Microstructural Homogeneity of Printed ER70 S-1 Cylindrical Components Using CMT-Powered WAAM

Yusuf O. Busari, A. J. Farounbi, S. N. M. Ghazali, Y. HP Manurung, Y. L. Shuaib-Babata, K. S. Ajao, M. F. Mat, I. H. Kobe, M. Leitner, University of Ilorin, Nigeria

Microstructural And Mechanical Characterizations of In718 Nickel-Based Superalloy Fabricated via Laser-Based Additive Manufacturing

Hassan Ghorbani, University of Tehran, Iran

POSTER PRESENTATIONS (cont.)

Microstructure, Mechanical properties, and High-Temperature Oxidation Performance of Wire Arc Additively Manufactured Inconel 625 Alloy

Abolfazl Safarzadeh, M. Sharifitabar, M. S. Afarani, S. Khorshahian, University of Sistan and Baluchestan, Iran

N. K. Jain, P. Kumar, Partogaran Sanat Khayyam Welding Research Company, Iran

Welding and Characterization of Armor Steels

Müesser Göçmen, Ceren Çelik, Ozan Çoban, Uğur Gürol, Mustafa Koçak, İstanbul Gedik University, Türkiye

