35th Conference on Surface Modification Technologies

18-22 September 2023
Hamburg, Germany

Program

Hamburg, Innenalster

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Dear attendee,

On behalf of the Organizing Committee we are very pleased to welcome you to the 35th International Conference on Surface Modification Technologies! Over its long history, the SMT conference has been held in numerous countries around the world and we are proud that after the long pause the SMT35 conference is hosted in Hamburg! This year the SMT conference is organized in deep cooperation of ***Helmholtz-Zentrum Hereon*** and ***Helmut Schmidt University***, two research centers actively working on the development of new surface engineering processes.

For many years the International Conference on Surface Modification Technologies has been known to provide an exceptional platform for scientists to bring together all hot topics within the field of surface engineering. The SMT35 covers numerous highly important topics ranging from cold and thermal spray coatings to plasma electrolytic surface treatments and smart functional coatings. The SMT35 conference comprises 5 plenary speakers, 10 key notes presentation, 60 oral presentations and 15 posters grouped in 16 sessions. Moreover, PhD students and early age postdoctoral researchers will have a chance to compete in the young scientist session. Additionally to scientific program, we hope that you will enjoy the gala dinner with us, which will take place on the MS Hanseatic, where you can expect an unforgettable harbor cruise on the Elbe through the port of Hamburg!

We would like to thank you for attending the SMT35 conference! For us, the SMT35 conference is not an excellent chance to discuss the newest scientific results, but also meet old colleague and friends! We hope that you will enjoy the meeting!

Welcome in Hamburg! Willkommen in Hamburg!

Prof. Dr. Mikhail Zheludkevich
Helmholtz-Zentrum Hereon

Prof. Dr.-Ing. habil. Thomas Klassen
Helmut-Schmidt Universität/
Universität der Bundeswehr Hamburg

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Dr. Véronique Vitry, University of Mons, Belgium
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Dr. Ann Zammit, University of Malta, Malta
Dr. You Zhang, Beijing Institute of Petrochemical Technology, China
Prof. Mikhail L. Zheludkevich, Helmholtz-Zentrum Hereon, Germany

Plenary speakers

Prof. Hamid Assadi

Head of Virtual Engineering Centre and Professor of Solidification at Brunel University London

Prof Hamid Assadi is the Head of Virtual Engineering Centre and Professor of Solidification at Brunel University London. He studied Materials Engineering at Shiraz University, and received his PhD in Materials Science and Metallurgy from University of Cambridge in 1996. His work experience includes a professorship at Tarbiat Modares University, as well as several visiting appointments at Helmut Schmidt University, Max Planck Institute for Iron Research, and German Aerospace Centre (DLR). His research interests include modelling and simulation of materials and manufacturing processes, ranging from solidification and diffusion bonding to metal forming and cold spraying, with a focus on microstructure development under dynamic or non-equilibrium conditions.

Abstract

A materials perspective to cold spraying

Cold spraying is a solid-state powder deposition process, with several unique characteristics as a method for coating, additive manufacturing, and dynamic materials testing. It continues to receive attention from both industry and academia as an 'exotic' topic for research. This presentation aims to provide an overview of the cold spray process, the current understanding of the deposition mechanisms, and the related models and experiments, from a materials science perspective.

Dr. Andreas Momber

Head Research & Development, Muehlhan Holding GmbH, Hamburg

Dr. Andreas Momber is a Head of Research & Development, Muehlhan Holding GmbH, Hamburg, Germany. Dr. Andreas Momber studied Process Engineering (Dipl.-Ing.) in Bauhaus University, Weimar, Germany. Than he received in PhD (Dr.-Ing.) in the field of structural maintenance, Leipzig University of Technology, Leipzig, Germany. He was habilitated (Dr. habil.) in the field of materials wear, RWTH Aachen, Germany. He is a Private Lecturer RWTH Aachen, Faculty of Georesources and Materials Engineering. Dr. Momber worked at research institutions in Australia, Germany, Great Britain and the USA. His research interests include surface protection, surface technologies, wear, fracture/contact mechanics, inspection techniques. Dr. Andreas Momber is a member of various national and international working bodies (NACE, SSPC, GfKORR, WAB). He is an author of More than 200 peer-reviewed journal papers, books: „Hydroblasting and Coating of Steel Structures“, Elsevier, 2003; „Hydrodemolition of Concrete and Reinforced Concrete Structures“, Elsevier, 2005; “Blast Cleaning Technology”, Springer, 2008; „Corrosion and Corrosion Protection of Wind Power Structures in Marine Environments“, Elsevier, 2022. He was the winner of Alexander-von-Humboldt Award, Feodor-Lynen Award, DFG Fellowship and Habilitation Award.

Abstract

Surface protection of offshore wind power structures

The presentation reviews the fundamentals and applications of protective coatings to structures in marine and offshore environments. The compositions and respective protective effects of coating systems are discussed. Organic coating systems, metal-based coating systems, and duplex coatings are considered. Coatings for special loads, different from corrosive loads, are discussed in detail. Typical coating specifications for different structural details are reviewed. Test for coating evaluation and typical coating damages are described and categorized. Models for coating deterioration and coating lifetime models are presented.

Dr. Kentaro Shinoda

Group Leader of the Advanced Functional Surface Group at the Advanced Manufacturing Research Institute at the National Institute of Advanced Industrial Science and Technology (AIST)

Dr. Kentaro Shinoda is the Leader, Advanced Functional Surface Group of the Advanced Manufacturing Research Institute at the National Institute of Advanced Industrial Science and Technology (AIST), Japan. He received his Ph.D. in Engineering from the University of Tokyo in 2006. After two postdoctoral fellowships at the National Institute for Materials Science (NIMS) and the Center for Thermal Spray Research (CTSR) at Stony Brook University, Dr. Shinoda joined in AIST in 2011. His current interest is developing a new ceramic coating technology called a hybrid aerosol deposition (HAD), which enables a combination of aerosol deposition and plasma spray, towards realizing a zero-emission society, especially in thermal/environmental barrier functions in ammonia and hydrogen combustion systems. He is also appointed as an Adjunct Professor at Shibaura Institute of Technology. He serves as the member of the director board of the Japan Thermal Spray Society and the Associate Editor of the Journal of Thermal Spray Technology.

Abstract:

Current Status and Future Directions of Kinetic Spraying of Ceramics: Beyond Aerosol Deposition

Kinetic spraying is an attractive method to deposit not only metallic materials but also brittle materials such as ceramics. It can add high functional values to the surface of three-dimensional components by impaction of solid particles. Aerosol deposition is a well-known deposition technique of ceramics. Here, submicrometer to micrometer-sized feedstock powder is sprayed in vacuum, and ceramic coatings are formed by room temperature impact consolidation phenomena. The Y_2O_3 coatings deposited by the aerosol deposition are very dense and proven to show an excellent plasma resistance and widely used in modern semiconductor manufacturing equipment. Cold spraying of ceramics is also reported for several materials such as TiO_2 and Y_2O_3. Here, only the powder with a specific structure reportedly forms thick ceramic coatings. However, the deposition efficiency of ceramic materials in kinetic spraying is not so high compared to that of melt quenching process in many cases, and significant improvement is demanded from industry based on the understanding of fundamental deposition phenomenon.

In this presentation, we would like to introduce and discuss our current understanding of the room temperature impact consolidation phenomena and our challenge to improve the capability of kinetic spraying of brittle materials. The first topic is the introduction of additional energy such as plasmas and lasers to enhance the kinetic spray process. The utilization of a mesoplasma jet to enhance the particle surface activation was effective to increase the deposition efficiency. The activated surface of particles can act as adhesive and sealing of porous materials became possible. The role of plasmas will be discussed together with the effect of particle temperature and velocity. The second topic is about our recent activities to elucidate the deposition mechanism of brittle ceramics. We utilized a microcompression test in a scanning electron microscope to observe the particle compression behavior. Single crystalline sapphire particles showed a brittle-to-ductile transition with reduced size. The obtained structure exhibited nano-crystalline structure, suggesting that the polycrystallization plays an important role in the deposition of brittle materials. More recently, texture formation is observed in the aerosol deposited coatings.

Dr. Tirumalai Sudarshan

Materials Modification Inc, Fairfax, Va 22031

Dr. T S Sudarshan obtained his B.Tech. in Metallurgy from IIT Madras in 1976, and later completed his M.S. and Ph.D. in Materials Engineering Science at Virginia Tech, USA. He worked at Ashok Leyland as a Senior Metallurgist and established a modern metallurgical laboratory and managed various research programs. Dr. Sudarshan is currently the President and CEO of Materials Modification Inc., which is at the forefront of research, development and commercialization of advanced materials utilizing novel processing techniques. Dr. Sudarshan is a Fellow of ASM International, USA; Fellow of International Federation on Heat Treatment and Surface Engineering, UK; and Fellow of Institute of Mining, Metals and Materials, UK. He was the winner of the R&D 100 Award for Nanogen in 1998, the Design News Award, and R&D 100 Award for Plasma Pressure Compaction in 1999. He was recognized as "Outstanding Young Manufacturing Engineer" by the Society of Manufacturing Engineers in 1990. Dr Sudarshan has published over 170 papers, edited 29 books, is the editor of two international journals – Surface Engineering, and Materials and Manufacturing Processes – for more than 2 decades, and holds numerous patents.

Abstract

The power of patterning surfaces

In recent times the availability of tools has enabled the ability to pattern surfaces with precision and with unique functionalities. Various metrics of measure have helped enhance the possibilities as well as control the locations where the patterns can be created. The ability to tailor surfaces with different patterns on the same substrates to provide unique characteristics has opened up the possibilities in thermal management, friction and wear and optical control. The vastness of this field will be highlighted and the applications to some newer applications highlighted. The surface engineer has now the unique ability to not only treat conventional engineering surfaces but can also treat biological surfaces for improved response. Finally the inspiration drawn from nature to create surfaces and patterns provides the unique features that can expand the imagination of researchers in developing creative solutions

Dr Aleksey Yerokhin

Head of the Plasma Electrolysis Research Laboratory in the Henry Royce Institute and a Senior Lecturer in Surface Engineering of Materials in the Department of Materials at the University of Manchester

Dr. Aleksey Yerokhin is the Head of the Plasma Electrolysis Research Laboratory in the Henry Royce Institute and a Senior Lecturer in Surface Engineering of Materials in the Department of Materials at the University of Manchester (UK). He was graduated in Materials Science and Metallurgy and received PhD in Engineering from Tula State University in Russia. His research interests include various aspects of plasma-assisted electrolytic, atmospheric pressure and vacuum-based processes for surface treatment and coating of metals to ensure their sustainability and pave new processing routes for manufacturing of high-performance materials, biomedical and functional devices. He is renowned for pioneering studies of Plasma Electrolysis for Surface Engineering which have triggered a world-wide interest and led to breakthrough technological developments. He has authored and co-authored over 110 research papers, 20 of which have been cited more than 100 times (h index 42, Scopus, 2023). His current research is focused on understanding fundamental mechanisms of plasma electrolysis and digitalisation of associated surface engineering processes. Dr Yerokhin is a member of the International Society of Electrochemistry, the American Ceramic Society and American Vacuum Society. He the Editorial Board member for Surface and Coatings Technology (Elsevier), the Journal of Non-Ferrous Metals (Springer) and Surfaces (MDPI), and the Associate Editor of Frontiers in Chemical Engineering (Frontiers). His academic career included appointments at Universities of Sheffield and Hull in the UK and Tula State University, where he worked as Associate Professor and led major electrochemical research laboratory. He has held Visiting Professor positions at the National University for Science and Technology MISiS in Russia and the Central South University in China. He also has significant experience of working for and with industry.

Abstract

Towards intelligent surface manufacturing: new developments in active diagnostics of electrolytic plasma processes

Addressing strategic needs for sustainable, resource- and energy efficient manufacturing brings development of new environmentally benign, digitally controlled surface engineering technologies at the forefront of research interest. Particular attention is attracted by plasma-assisted electrolytic surface treatments that can provide REACH compliant alternatives to acid-based processes, such as electro-polishing and anodising, as well as offer a greater design freedom by affording high-performance ceramic coatings on complex-shape light alloy components. Intelligent approach to the development of the new generation of electrolytic plasma processes relies upon embedded quasi-autonomous digital control loops that require appropriate diagnostic tools and digital twins, i.e. models linking in real time processing parameters and diagnostic data to the surface properties that are unobservable in situ. This talk overviews recent progress in the development and application of experimental methods for active diagnostics of electrolytic plasma processes used for surface engineering of advanced materials. Associated discussion reveals important insights into fundamental mechanisms underlying electrochemical behaviour of materials under transient conditions of high voltage pulse and pulse-reverse polarisation that were achieved using new diagnostic tools. Finally, practical significance and implications of these findings for the design of intelligent electrolytic plasma processes with high energy efficiency and real time control over characteristics or plasma discharge and resulting surface layers are estimated.

General program

	18 September Monday	19 September Tuesday	20 September Wednesday	21 September Thursday	22 September Friday
8.30-18.00		Registration	Registration	Registration	
9.00-9.50		Plenary Lecture 2 : Dr. K. Shinoda	Plenary Lecture 3 Dr. A. Momber	Plenary Lecture 4: Dr. A. Yerokhin	Plenary Lecture 5: Prof. H. Assadi
9.50-10.30		Coffee break	Coffee break	Coffee break	Coffee break
10.30-12.30		Key notes 1: P. Poza Session 1: Cold and thermal spray Session 2: Novel Surface Modification Techniques	Key notes 3: O. Knudsen Session 7: Corrosion protection Session 8: Cold and thermal spray Laser processing and cladding	Key notes 5: X. Lu Key notes 6: L. Wu Session 11: Anodization Plasma electrolytic surface treatments Session 12: Pretreatment, conversional layers	Key notes 9: C. Huang Key notes 10: Y. Zhang Session 15: Cold and thermal spray Session 16: Smart functional coatings
12.30-14.00		Lunch	Lunch	Lunch	Closing Ceremony
14.00-15.30		Session 3: Cold and thermal spray Session 4: Novel Surface Modification Techniques	Young scientists presentation	Key notes 7: A. Rogov Session 13: Plasma electrolytic surface treatments Session 14: Surf. Finishing after Additive Manufacturing Key notes 8: A. Davydok	
15.30-16.00	Registration	Coffee break	Coffee break & Poster session		
16.00-18.00	Opening Ceremony Plenary Lecture 1 Dr. T. S. Sudarshan	Key notes 2: S. Bagherifard Session 5: Cold and thermal spray Session 6: Catalytic/ photoactive coatings	Key notes 4: V. Vitry Session 9: Electro-/elect-roless plating Session 10: Modelling and simulations	17:30 – boarding time	
18.00-	Reception and Welcome Party			Conference dinner, Hamburg boat tour	

The program of the 35th Conference on Surface Modification Technologies

Monday, 18 September

15:30-16:30	Registration
16:30-16:50	Opening Ceremony: **Mikhail Zheludkevich, Thomas Klassen**
16:50-17:40	**Plenary Lecture 1 : Dr. T. S. Sudarshan** ***The power of patterning surfaces***
17.40-20.30	**Reception and Welcome Party**

Tuesday, 19 September

9:00-9:50	**Plenary Lecture 2 : Dr. Kentaro Shinoda** ***Current status and future directions of kinetic spraying of ceramics: beyond aerosol deposition***	
	Chairman: **Thomas Klassen**	
9.50-10.30	**Coffee break**	
	Room: Hörsaal 1	Room: Hörsaal 3
	Session 1 ***Cold and thermal spray***	Session 2 ***Novel Surface Modification Techniques***
	Chairman: **Heli Koivuluoto**	Chairman: **Sonia Brühl**
10:30-10:50	**Key note lecture 1:** **Pedro Poza** *Optimising Cr_2O_3 plasma sprayed coatings for concentrated solar power applications*	**Chenglu Hu** *The growth kinetics of Zn-based coating on AZ31 alloys by novel hot-dip process*
10:50-11:10		**Magnus Felix Grüner** *Surface hardening of titanium alloys by means of gaseous thermochemical surface treatment*
11:10-11:30	**Georg Mauer** *Development of plasma parameters for the manufacture of MCrAlY-bond coats by low-pressure plasma spraying using a cascaded torch*	**Giovanni Capurso** *Sealing effect of TiO_2 films deposited by atomic layer deposition on AA6XXX alloys*
11:30-11:50	**Kai Hu** *Preparation of NiCrBSi-ZrB_2 composite coating and its corrosion-wear resistance mechanism in high temperature Cl medium*	**Jelena Bajat** *The effect of RE element on the self-healing behavior of Zn-Co-RE composite coating on steel*
11:50-12:10	**Šarka Houdková** *Wear behavior of selected HVOF sprayed CrC-WC-M coatings*	**Thi Thao Nguyen** *Effect of cerium salt concentration on corrosion protection of hybrid organic/ inorganic Si/Zr sol-gel coating on hot dip galvanized steel*
12:10-12:30	**Betül Aktas** *Flame sprayed slippery liquid infused porous surfaces (FS-SLIPS) - From material selection to icephobicity*	
12:30-14:00	**Lunch**	

	Session 3 ***Cold and thermal spray***	Session 4 ***Novel Surface Modification Techniques***
	Chairman: **Frank Gärtner**	Chairman: **Xiaopeng Lu**
14:00-14:20	**Stefania Morelli** *CMAS corrosion behaviour of thermal barrier coatings deposited by liquid feedstock plasma spraying*	**Alessandro Togni** *Deposition of AxCoCrFeNi HEA thin films by HiPIMS: Effect of substrate bias voltage*
14:20-14:40	**Maria Francesca Bonilauri** *Deposition and characterization of Co-free HVOF coatings*	**Anna Cattani-Scholz** *Functional organophosphonate interfaces for nanotechnology*
14:40-15:00	**Reza Jafari** *Improvement of flame-sprayed and cold-sprayed coating characteristics with quasicrystal reinforcement*	**Dzmitry Kharytonau** *Chitosan-based Coatings for Corrosion Protection of Biodegradable Mg Alloys*
15:00-15:20	**Antonio Viscusi** *Aluminium foam structures via cold spray*	**Sajjad Akbarzadeh** *Self-healing plasma electrolytic oxidation (PEO) coating developed by an assembly of corrosion inhibitive layer and sol-gel sealing on AA2024*
15:20-15:40	**Lutz-Michael Berger** *Microstructure and properties of modified TiC-based hardmetal coatings*	
15:40-16:10	**Coffee break**	
	Session 5 ***Cold and thermal spray***	Session 6 ***Catalytic and Photoactive Coatings***
	Chairman: **Chunjie Huang**	Chairman: **Mauricio Schieda**
16:10-16:30	**Key note lecture 3:** **Sara Bagherifard** *Numerical evaluation of mechanical indexes in cold spray deposition*	**Rastko Vasilić** *Photocatalytic coatings with zeolites prepared by plasma electrolytic oxidation on aluminium support*
16:30-16:50		**Alessia Bruera** *Aerosol deposition of $CuFeO_2$ photo-cathode coatings for Solar Hydrogen Production*
16:50-17:10	**Zahra Arabgol**	**Zexin Yu** *High performance high-entropy oxide coatings as OER electrodes*

	Effects of kinematic parameters on temperature and thermal stress distribution in cold spraying	*for electrochemical water splitting via SPPS process*
	Paloma Sirvent	**Andreas Elsenberg**
17:10-17:30	*Tribological study of titanium alloy coatings sprayed by cold spray technique*	*Tuning aerosol deposition of $BiVO_4$ films for effective sunlight harvesting*

Wednesday, 20 September

9:00-9:50	***Plenary Lecture 3: Andreas W. Momber*** ***Surface protection of offshore wind power structures***	
	Chairman: **Mikhail Zheludkevich**	
9.50-10.30	**Coffee break**	
	Room: Hörsaal 1	Room: Hörsaal 3
	Session 7 ***Corrosion protection***	Session 8 8.1. ***Cold and thermal spray*** 8.2. ***Laser Processing and Cladding***
	Chairman: **Liang Wu**	Chairman: **Ann Zammit**
10:30-10:50	**Key note lecture 4:** **Ole Øystein Knudsen** *Corrosion and protection of aluminium in the marine environment*	**Hamid Jahed** *Cold spray coating of copper for enhanced disinfection of diverse substrates*
10:50-11:10		**Farrokh Taherkhani** *Influence of surface-rolling and annealing on microstructural and mechanical characteristics of cold sprayed inconel®625 deposits*
11:10-11:30	**Qi Zou** *Corrosion behaviour of AZ80 magnesium alloy with Nd addition in simulated cement concrete environment*	**Samanyu Raina** *Numerical study of radial nozzle designs for cold spray application*
11:30-11:50	**Sonia Brühl** *Short time nitriding and nitrocarburizing of martensitic stainless steel*	**Matthew Curmi** *Laser shock peening of austempered ductile iron for fatigue resistance*
11:50-12:10	**Polina Volovitch** *Inhomogeneity at buried interfaces and their effect on corrosion resistance of coated systems*	**Shaoyun Zhou** *Development of joining strength in Al-PA6 hybrid structures produced via laser-induced in-situ reaction*
12:10-12:30		**Sunil Pathak** *Investigations on laser shock peening of small size components*
12:30-14:00	**Lunch**	
14:00-15:00	**Young scientific session**	
	Chairman: **Valeryia Kasneryk and Ting Wu**	
15:00-15:30	**Coffee break & Poster session**	

15:30-16:00	**Poster session**	
	Session 9 ***Electro- and Electroless Plating***	Session 10 ***Modelling and simulations***
	Chairman: **Aleksey Yerokhin**	Chairman: **Sonia Brühl**
16:00-16:20	**Key note lecture 5:** **Véronique Vitry** *Effect of nanodiamonds on the scratch resistance and toughness of electroless Ni-B-nanodiamond coating*	**Lisa Sahlmann** *Selection of effective corrosion inhibitors for aluminium based on data-driven techniques*
16:20-16:40		**Jesús Amador** *Phase field method for uniform corrosion of mild steel at different pH considering the rate-limiting oxides*
16:40-17:00	**Feng Li** *Investigation of ion implantation on electroplated Au0.5Co coating for electrical contact applications*	**Natalia Konchakova** *Data documentation and interoperability support at open innovation environment*
17:00-17:20	**Andrew J. Cobley** *The development of an ink-jettable copper-silver core shell catalyst for the selective metallisation of textiles by electroless copper plating*	
17:20-17:40	**Muslum Yunacti** *A greener alternative to the hard chrome coating process: lead-free electroless nickel-boron coatings*	

Thursday, 21 September

9:00-9:50	***Plenary Lecture 4: Dr. Aleksey Yerokhin*** **Towards intelligent surface manufacturing: new developments in active diagnostics of electrolytic plasma processes**	
	Chairman: **Mikhail Zheludkevich**	
9.50-10.30	**Coffee break**	
	Room: Hörsaal 1	Room: Hörsaal 3
	Session 11 ***Anodisation and plasma electrolytic surface treatments***	Session 12 ***Pretreatment and conversional layers***
	Chairman: **Aleksey Rogov**	Chairman: **You Zhang**
10:30-10:50	**Key note lecture 6:** **Xiaopeng Lu** *Tuning corrosion performance of Mg alloy by inhibitor and PEO coating*	**Key note lecture 7:** **Liang Wu** *Layered double hydroxide self-healing coatings on magnesium alloys*
10:50-11:10		
11:10-11:30	**Laurent Arurault** *Innovative sealings of tortuous anodic films prepared on aeronautical aluminum alloys*	**Thu Thuy Pham** *Study of formation and corrosion resistance of Ce-doped ZnAl hydrotalcite layers on different zinc alloys coated steel*
11:30-11:50	**Paweł Głuchowski** *Multifunctional $Er_xYb_yY_{2-x-y}O_3$ Coatings on Magnesium Alloy Prepared by Plasma Electrolytic Oxidation (PEO) Process*	**Roya Malekkhouyan** *The study of LDH properties on different surface pretreatments for application of biobased benzoxazine resin*
11:50-12:10	**Hao Tang** *Multiscale analysis of the compressive behaviour of polymer-based composites reinforced by γ-Al_2O_3/Al fibres fabricated by plasma electrolytic oxidation*	**Zhe Zhang** *MOF-based conversion films for active corrosion protection through the in situ growth strategy*
12:10-12:30		**Federico Lissandrello** *Effect of current density in electrolytic phosphating*
12:30-13:30	**Lunch**	
	Session 13 ***Plasma electrolytic surface treatments***	Session 14 **Surface Finishing after Additive Manufacturing**
	Chairman: **Rastko Vasilic**	Chairman: **Veronique Vitry**

13:30-13:50	**Key note lecture 8:** **Aleksey Rogov** *The role of cathodic current in high-voltage anodic coating formation – insight into Plasma Electrolytic Oxidation*	**M. Belén García-Blanco** *Analysis of the boundaries of surface treatments to protect Al alloys produced by powder bed additive manufacturing*
13:50-14:10		**Jérome Roche** *Study of material removal during Plasma Electrolytic Polishing of AS7G06 aluminum alloy, resulting from Additive Manufacturing*
14:10-14:30	**Qianqian Chen** *In-situ synthesis of Mg-Al layered double hydroxide films on plasma electrolytic oxidized AM50 Mg alloy*	**Sara Bagherifard** *Gradient severe shot peening process for surface treatment of additive manufactured AlSi10Mg alloy*
14:30-14:50	**Natalia Raźny** *PEO coating with carbon-based fillers as a thermally conductive anticorrosive solution for thermal energy storage – preliminary studies*	**Key note lecture 9:** **Advanced Surface Characterization** **Anton Davydok** *X-ray Scattering Methods of a Surface Characterization with High Spatial Resolution*
14:50-15:10	**Ashutosh Tiwari** *Development of ceramic coatings on Mg-based screw implants for orthopedic application via plasma electrolytic oxidation process*	
15:10-17:30	Free time	
17:30	**Boarding time**	
18:00-21:00	**Conference dinner, *Hamburg boat tour***	

Friday, 22 September

9:00-9:50	**Plenary Lecture 5 : Prof. Dr. Hamid Assadi** ***A materials perspective to cold spraying***	
	Chairman: **Thomas Klassen**	
9.50-10.30	Coffee break	
	Room: Hörsaal 1	Room: Hörsaal 3
	Session 15 ***Cold and thermal spray***	Session 16 ***Smart functional coatings***
	Chairman: **Andreas Elsenberg**	Chairman: **Maria Serdechnova**
10:30-10:50 10:50-11:10	**Key note lecture 10:** **Chunjie Huang** Cold spray reshaping brings Achilles' armor or his heel?	**Key note lecture 11**: **You Zhang** *Active protective coatings for light alloys based on nanocontainers*
11:10-11:30	**Yannik Sinnwell** *Experimental investigation of the spray characteristics of particles with different morphology for low pressure cold spray application*	**Thymoty Naacke** *LDH-Synthesis for the passivation of Al alloy coatings on steel substrate*
11:30-11:50	**Mustafa Bozoglu** *Surface modification of steel and titanium components by cold spraying*	**Kiryl A. Yasakau** *Corrosion inhibition properties of LDH conversion coatings formed on zinc-based substrates*
11:50-12:10	**Frank Gärtner** *Bonding and layer formation in cold gas spraying and aerosol deposition*	**Tatsiana Shulha** *The role of chelating agent for in situ growth of LDH on bare and PEO coated magnesium alloys*
12:10-12:30	**Alessia Serena Perna** *Cold Spray technology within the Industry 4.0 scenario: perspectives to exploit and limits to overcome*	**Yin-Yu Chang** *A new functional coating with multicomponent alloy composition for dental implant applications*
12:50-13:20	***Closing Ceremony***	

Posters

Po01 **Shaoyun Zhou**
Kinetic spray method for the deposition of gallium nitride coatings on metal substrates

Po02 **Farrokh Taherkhani**
Influences of spray parameters and robot kinematics on cavitation erosion resistance of cold sprayed Inconel®625 coatings

Po03 **Donya Ahmadkhaniha**
Improving the electroplating simulation model for producing uniform coating thickness distribution

Po04 **Ting Wu**
Improvement of corrosion resistance of sintered Ti/Mg0.6Ca with PEO processing

Po05 **Jérome Roche**
Improvement of transverse electrical conductivity of oxide coatings formed by plasma electrolytic oxidation on aluminum alloys

Po06 **Thymoty Naacke**
Influence of abrasive pre-treatment on the corrosion and adhesion properties of Al-anode coatings on steel substrate

Po07 **Valeryia Kasneryk**
Controllable recrystallization of $ZnO/ZnAl_2O_4$ based PEO into ZIF-8 as a route for the formation of multifunctional coatings

Po08 **Marek Vostřák**
Adhesion analysis of HVOF sprayed coatings on laser textured nitrided steel substrates

Young researches presentations

YR01 **Lorenzo Ferrari**
CoBRAIN project: developing sustainable wear and corrosion-resistant coatings through machine learning and high entropy alloys

YR02 **Keiichi Sato**
Investigation of crystal orientation on large deformation of brittle material particles at room temperature

YR03 **Peng Xie**
Effect of low concentration electrolytes on the formation and corrosion resistance of AM50 magnesium alloy coated by plasma electrolytic oxidation

YR04 **Kristina Mojsilović**
Pathway to facile one-step fabrication of PEO coatings in LDH-based electrolytes

YR05 **Daniela Kujawa**
Preparation of PEO single and multilayer strontium and barium ferrites coatings on magnesium alloys

YR06 **Ersilia Cozzolino**
Post-process machining to enhance the surface finishing of high-performance AM parts

YR07 **Luca Bortolotti**
Influence of manufacturing route and nozzle configuration on deposition and properties of HVAF-sprayed WC-CoCr coatings

Practical information

SMT35 conference will be held in:

Helmut-Schmidt-Universität/Universität der Bundeswehr Hamburg,
Holstenhofweg 85
22043 Hamburg

How to reach us

By car
BAB 24 Exit HH-Jenfeld, travel Schiffbeker Weg heading north until Rodigallee, turn left, follow Rodigallee to campus Holstenhofweg.

By Rail & Bus
From Main Station with bus no. X35 (direction Sorenkoppel) to busstop "Universität der Bundeswehr" for campus Holstenhofweg.

Or:
From Main Station with Underground U1 to Wandsbek Markt, change for bus no. X22, X11, 10, 162, or 263 to busstop "Universität der Bundeswehr" for campus Holstenhofweg.

By Airplane
From HAM Airport by suburban train S1 to Wandsbeker Chaussee, change for bus no. X22 (direction Jenfeld Zentrum) to busstop "Universität der Bundeswehr".

Or:
From HAM Airport suburban train S1 to Wandsbeker Chaussee, change for Underground U1 to Wandsbek Markt, change for bus no. X22, X11, 10, 162, or 263 to busstop "Universität der Bundeswehr" for campus Holstenhofweg.

The lectures take place in the building H1 in the rooms: Hörsaal 1 and Hörsaal 3.
The lunches will served in the building «Menza».
The coffee breaks will be in the building H1, main hall

Practical information

Welcome party

Welcome party will be in the

Helmut-Schmidt-Universität/Universität der Bundeswehr Hamburg,
Holstenhofweg 85
22043 Hamburg

Building H1, main hall

Gala dinner

Gala dinner "Welcome on board"

The gala dinner will take place on the MS Hanseatic. You can expect an unforgettable harbor cruise on the Elbe through the port of Hamburg. On board there will be a buffet and there will be enough time for excited conversations. After a 3 hour cruise we will dock again at the Landungsbrücken around 9 pm.

Departure has to be on time, we kindly ask all guests to be on time for boarding at 5:30 pm. As the berthing times of the ships are precisely planned, we unfortunately cannot allow any delays.

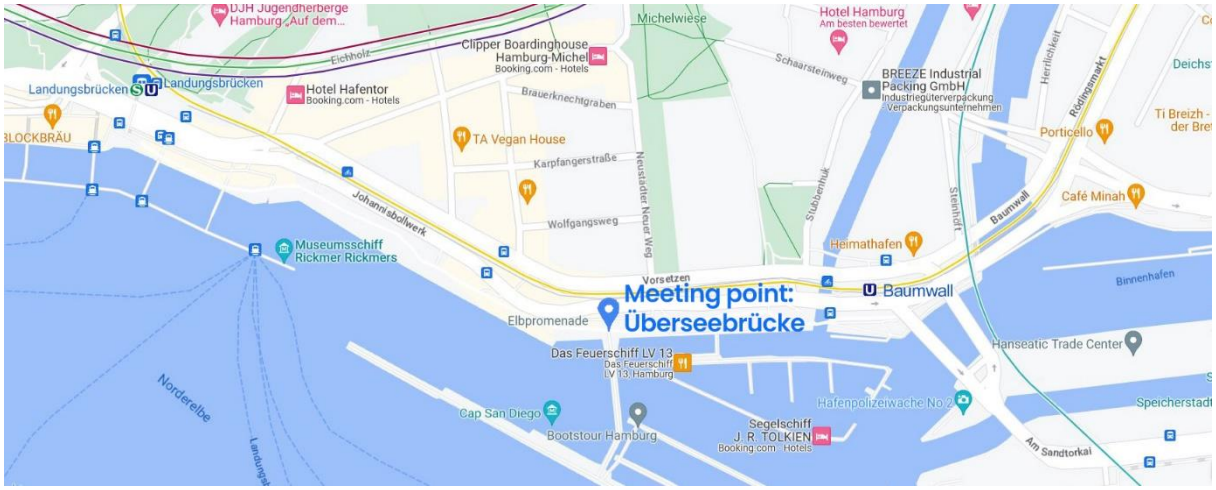
Gala Dinner on the 21.09.2023

Meeting point: Überseebrücke / Hamburg

Boarding 5:30 pm, Departure 6 pm - End 9 pm

We offer a transfer from the HSU to the Überseebrücke, where the ship will depart. Please be at the main entrance of the HSU at 16:30.

You are also welcome to arrive by public transport.



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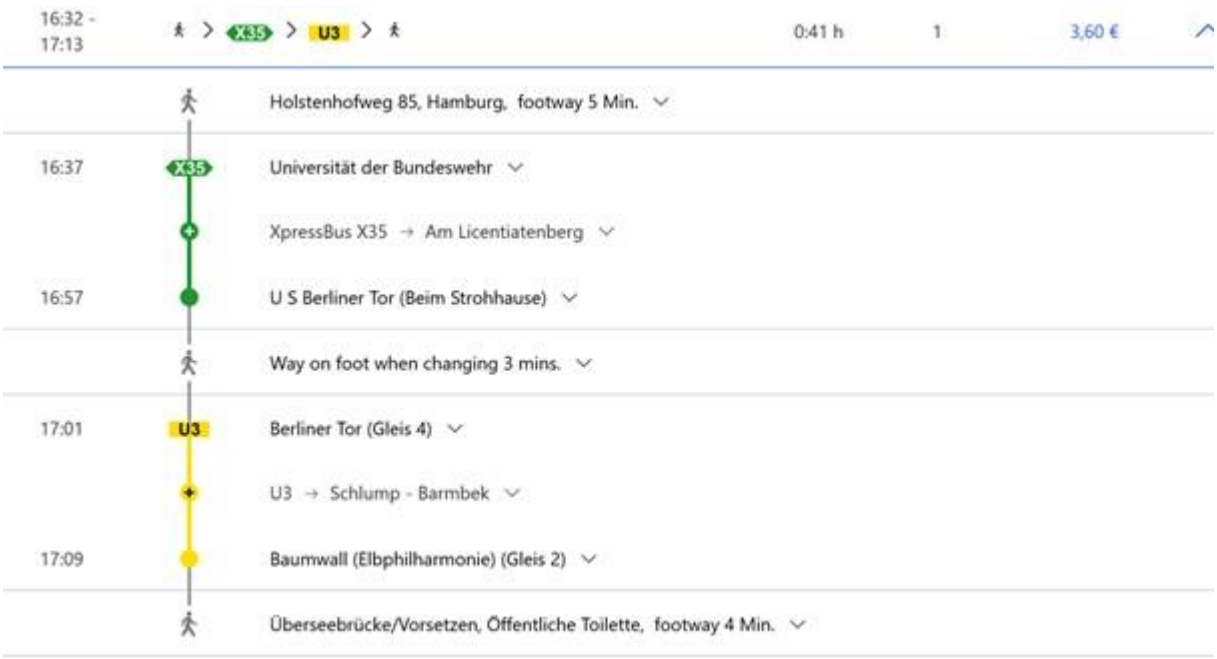

Please use the HVV App: https://www.hvv.de/en

Contact

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Industrial partners of the SMT35 conference

PHYSICAL ELECTRONICS GMBH

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- HORIZON-CL4-2022-TWIN-TRANSITION-01-02 project Nr. 101091982 (Sure2Coat project: "Sustainable surface treatments of complex shape components for transsectorial industrial innovation")
- MarTERA (Maritime and Marine Technologies for a new ERA) in frame of ERA-NET Cofund scheme of Horizon 2020 (MARINAL project: "Safe use of aluminium in marine multi-material constructions")

Notes

Notes

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