



12th International Conference on HIPIMS. Technical Programme

DAY ONE 8:30-8:45 Opening address

A. Ehasarian, SHU, Ralf Bandorf, Fraunhofer IST, Rory Duncan, SHU Pro VC Research

15. 06. 2022, First Morning session

Session Chairman: <i>Prof. Arutiun P. Ehasarian, Sheffield Hallam University, UK.</i>	Present ation time	Q&A
1. Quo Vadis talk. D. Elliott, SEA/SELF, UK, <i>"Surface Engineering, the key to a sustainable future"</i>	8:45- 9:05	
2. Q. Yao, P. K. Petrov, Imperial College London, UK, <i>"Gold nanoparticles' decorated plasmonic thin films"</i>	9:05- 9:20	9:20- 9:25
3. R. Bower ¹ , D. A. L. Loch ² , P. Eh. Hovsepian ² , A. P. Ehasarian ² , P. K. Petrov. ¹ Imperial College London, UK, ² Sheffield Hallam University, UK. <i>"Room temperature HIPIMS deposition of plasmonic TiN"</i>	9:25- 9:40	9:40- 9:45

Coffee Break 9:45-10:00

15. 06. 2022, Second Morning session

Session Chairman: <i>Prof. Margaret Stack, University of Strathclyde, UK</i>	Present ation time	Q&A
4. W. M. Rainforth, Yidong Xu, Jiahui Qi, John Nutter, Junheng Gao, Dikai Guan. <i>University of Sheffield, UK,</i> <i>"How surface topography, microstructure and applied potential effect wear and the formation of low friction tribofilms on titanium alloys".</i>	10:00- 10:15	10:15- 10:20
5. T. Polkar, <i>University of Southampton, UK,</i> <i>"Solid lubricants - from atomistic design to applications".</i>	10:20- 10:35	10:35- 10:40
6. Quo Vadis talk Robert Quarshie, Innovate UK KTN, UK	10:40- 11:00	

Coffee Break 11:00-11:15

15.06.2022, Third Morning session

Session Chairman: Dr. Dave Doerwald, IHI Hauzer Techno Coating B.V., Venlo, The Netherlands	Present ation time	Q&A
7. Z. Tian, P. Lu, S. Wang, R. Wood , <i>University of Southampton, UK,</i> “Detection and prevention of early surface degradation”	11:15- 11:30	11:30- 11:35
8. Soheil Karimi Aghda ^a , Denis Music ^b , Damian M. Holzapfel ^a , Yeliz Unutulmazsoy ^c , Heng Han Sua ^a , Stanislav Mráz ^a , Marcus Hans ^a , Daniel Primetzhofer ^d , André Anders ^{c,e} , J. M. Schneider^a , ^a <i>RWTH Aachen, Germany</i> , ^b <i>Malmö University, Sweden</i> , ^c <i>Leibniz Institute of Surface Engineering (IOM), Germany</i> , ^d <i>Uppsala University, Sweden</i> , ^e <i>Leipzig University, Germany</i> . “Unravelling the ion-energy-dependent structure evolution and its implications for the elastic properties of (V,Al)N and (Ti,Al)N thin films”.	11:35- 11:50	11:50- 11:55
9. Quo Vadis talk T. Hurkmans . <i>Ionbond, The Netherlands</i> , “The role of vacuum deposited coatings towards a carbon neutral future, the Ionbond perspective”	11:55- 12:15	

Conference photograph and lunch break 12:15-13:30

15. 06. 2022, First Afternoon session

Session Chairman: Dr. Ton Hurksmans, Ionbond Netherlands B.V., Venlo, The Netherlands	Present ation time	Q&A
10. A. Matthews , <i>University of Manchester, UK</i> , “The DSM NetworkPlus leads the way to ‘Net-zero’ in Surface Engineering”.	13:30- 13:45	13:45- 13:50
11. A. P. Ehasarian¹ , A. A. Sugumaran ¹ , P. Eh. Hovsepian ¹ , C. Davies ² , P. Hatto ² , ¹ <i>Sheffield Hallam University, UK</i> , ² <i>Ionbond UK Ltd</i> . “Digitalising High Power Impulse Magnetron Sputtering for Thin Film Microstructure and Texture Design”.	13:50- 14:05	14:05- 14:10
12. H. Gerdes , F. Oldenburg, A. Pflug, R. Bandorf, M. Vergöhl, C. Herrmann, <i>Fraunhofer IST, Germany</i> , “Digitalization and Data Management for Vacuum processes”	14:10- 14:25	14:25- 14:30

Coffee Break 14:30-14:45

15.06.2022, Second Afternoon session

Session Chairman: Dr. Ralf Bandorf, Fraunhofer IST, Germany	Present ation time	Q&A
13. S. K. Aghda^a , H. H. Sua ^a , D. Holzapfel ^a , A. L. Febvrier ^b , M. Hans ^a , D. Primetzhofer ^c , J. M. Schneider ^a ^a <i>RWTH Aachen,</i> <i>Germany,</i> ^b <i>Linköping University, Sweden,</i> ^c <i>Uppsala University,</i> <i>Sweden.</i> “Tuning the elastic properties of epitaxial V1-yAl_yN_x thin films by controlling the occupancy of metal and non-metal sublattices”	14:45- 15:00	15:00- 15:05
14. B. Doiron¹ , N. A. Güsken ¹ , A. Lauri ¹ , Y. Li ¹ , A. Mihai ² , T. Matsui ¹ , Ryan Bower ² , A. Regoutz ² , S. Dal Forno ² , S. Fearn ² , P. K. Petrov ² , E. Cortés ^{1,3} , L. F. Cohen ¹ , N. M. Alford ² , J. Lischner ² , P. Petrov ² , S. A. Maier ^{1,3} , R. F. Oulton¹ , ¹ <i>Dept. of Physics, Imperial</i> <i>College London,</i> ² <i>Dept. of Materials, Imperial College London,</i> ³ <i>Ludwig-Maximilians-Universität, Germany</i> “Hot carrier optoelectronics with titanium nitride”	15:05- 15:20	15:20- 15:25
15. Quo Vadis talk M. Stack , <i>University of Strathclyde, UK,</i> “Climate Erosion Maps and Net Zero for Surface Coatings; Some Future Strategies.”	15:25- 15:45	

Coffee Break 15:45-16:00

15. 06. 2022, Third Afternoon session

Session Chairman: Dr. Daniel Loch, Sheffield Hallam University, UK	Present ation time	Q&A
16. D. Doerwald , R. Bosch, K. Fuchigami, R. Jacobs and P. Immich, <i>IHI Hauzer Techno Coating, The Netherlands,</i> “High volume production bipolar plate coating for high end applications”	16:00- 16:15	16:15- 16:20
17. J. Zgheib, M-P. Besland , A. Rhallabi and P-Y Jouan, <i>Nantes University, France,</i> “Using the ee-HiPIMS to improve the crystallinity of Cr and Ti thin films”	16:20- 16:35	16:35- 16:40
QUO VADIS panel discussion session: Surface Engineering for net zero	16:45- 17:30	17.30 END OF FIRST DAY

Conference Dinner: 19:00- 21:00

Cutlers' Hall

DAY TWO

16.06.2022, First Morning session

Session Chairman: Prof. Günter Bräuer, TU Braunschweig, Germany	Present ation time	Q&A
18. R. Bandorf ¹ , T. Schütte ² , H. Gerdes ¹ , S. Körner ³ , M. Vergöhl ¹ . ¹ Fraunhofer IST, Germany, ² PLASUS GmbH, Germany, ³ TU Braunschweig, Germany. "Active control of reactive HIPIMS processes using spectroscopic and electric parameters"	9:00-9:15	9:15-9:20
19. K. A. Reck ¹ , Y. Bulut ^{2,3} , M. Schwartzkopf ² , S. Liang ³ , T. Guan ³ , J. Drewes ¹ , T. Strunskus ¹ , P. Müller-Buschbaum ³ , S. V. Roth ^{2,4} and F. Faupel ¹ . ¹ CAU Kiel, Germany, ² Deutsches Elektronen Synchrotron (DESY), Germany, ³ TU München, Germany, ⁴ KTH Royal Institute of Technology, Sweden. "In situ investigation of growth behaviour of metals deposited by HiPIMS with synchrotron-based X-ray scattering" .	9:20-9:35	9:35-9:40
20. T. Minea , E. Morel, A. El Farsy, University Paris Saclay, France. "Is Is 10 A/cm² the upper current limit in HiPIMS?"	9:40-9:55	9:55-10:00

Coffee Break 10:00-10:15

16.06.2022, Second Morning session

Session Chairman: Chairman: Prof. Günter Bräuer, TU Braunschweig, Germany	Present ation time	Q&A
21. P. Immich , L. Tegelaers, G.-J. Fransen, G. Negrea, R. Jacobs, IHI Hauzer Techno Coating, The Netherlands, "HIPIMS – The modern coating technology for advanced tools and components" .	10:15-10:30	10:30-10:35
22 Christoph Schiffers , CEMECON HiPIMS makes machining sustainable.	10:35-10:50	10:50-10:55
23. Patrick McCarthy , GENCOA, UK, "Bipolar HiPIMS discharges and their application for plasma treatment, cleaning and etching."	10:55-11:10	11:10-11:15

Coffee Break 11:15-11:30

16.06.2022, Third Morning session

Session Chairman: Dr. Yashodhan Purandare, Sheffield Hallam University, UK	Present ation time	Q&A
24. A.D. Pajdarová , T. Kozák, J. Čapek, <i>University of West Bohemia, Czech Republic,</i> “Effect of the pulse power in HiPIMS discharges on ground- state populations of Ti atoms and ions measured near the target by Cavity Ring-Down Spectroscopy”.	11:30- 11:45	11:45- 11:50
25. Ricardo Serra , <i>University of Coimbra,</i> “HiPIMS pulse shape influence on the deposition of diamond- like carbon films”	11:50- 12:05	12:05- 12:10
26. Marcus A. Law , Mark D. Bowden, James W. Bradley, <i>University of Liverpool, UK,</i> “Electron heating during the positive pulse of a Bipolar HiPIMS discharge measured by laser Thomson scattering”	12:10- 12:25	12:25- 12:30

Lunch Break 12:30-13:30

16.06.2022, Fourth Afternoon session

Session Chairman: Prof. Papken Hovsepiyan, Sheffield Hallam University, UK.	Present ation time	Q&A
27. P. Róžański^{1,2} , M. Puźniak ^{1,2} , W. Gajewski ¹ , R. Mroczyński ² ¹ TRUMPF Huettinger Sp. z o.o., Marecka 47, 05-220 Zielonka, Poland, ² Warsaw University of Technology, Poland “Metal oxide nanocoatings by HIPIMS for resistive random- access memory application”	13:30- 13:45	13:45- 13:50
28. J. Szelwicka , M. Fahland, <i>Fraunhofer FEP, Germany.</i> “Deposition of indium tin oxide layers in roll-to-roll High Power Impuls Magnetron Sputtering onto ultra-thin glass – the comparison with Pulsed Magnetron Sputtering”	13:50- 14:05	14:05- 14:10
29. A. W. Oniszcuk¹ , A. P. Ehasarian ² , C.-F. Carlström ³ , M. Ahlgren ³ ¹ TRUMPF Huettinger Sp. z o.o., Poland, Sheffield Hallam University, Sheffield, UK, ³ Sandvik Coromant, Sweden “Effect of controlled target poisoning on TiAlCN/VCN films deposited in mixed HIPIMS/DCMS discharge”	14:10- 14:25	14:25- 14:30

Coffee Break 14:30-14:45

16.06.2021, Fifth Afternoon session

Session Chairman: Dr. Christoph Schiffers, CemeCon AG, Germany	Present ation time	Q&A
30. V. Vishnjakov , <i>University of Huddersfield, UK,</i> “Materials and coatings for future nuclear energy generation.”	14:45- 15:00	15:00- 15:05
31. S. Körner ¹ , R. Bandorf ² , H. Gerdes ² , T. Schütte ³ <i>TU Braunschweig, Germany,</i> ² <i>Fraunhofer IST, Germany,</i> ³ <i>PLASUS GmbH, Germany,</i> “Optical Emission Spectroscopy of Cu-HIPIMS Discharges (Industrial scale HIPIMS copper deposition – process and plasma parameters)”	15:05- 15:20	15:20- 15:25
32. D. Vavassori ^a , M. Iafrati ^b , F. Gatti ^a , F. Mirani ^a , D. Dellasega ^a and M. Passoni ^a , ^a <i>Politecnico di Milano, Italy,</i> ^b <i>Department of Fusion and Technology for Nuclear Safety and Security, ENEA, Italy,</i> “Investigation of HiPIMS tungsten films for the development of liquid metal-based divertor for EU-DEMO”	15:25- 15:40	15:40- 15:45

Coffee Break 15:45-16:00

16.06.2022, Sixth Afternoon session

Session Chairman: Dr. Chris Constable, Ionbond UK Ltd., UK.	Present ation time	Q&A
33 T. J. Smith ¹ , T. Nichol ¹ , R. Akid ³ , C. Le Maitre ¹ , P. Hatton ⁴ , S. Salih ² , E. Thornhill ² , R. Jayasuria ² , A. Hamer ² , T. Harrison ² , H. Davies ² , M. Davies ² , P. Sutton ² , R. Kerry ² , R. Townsend ² , I. Stockley ² , ¹ <i>Sheffield Hallam University, UK,</i> ² <i>Sheffield Teaching Hospitals, UK,</i> ³ <i>University of Manchester,</i> ⁴ <i>University of Sheffield,</i> “Optimising the use of local antibiotic delivery in orthopaedic surgery”.	16:00- 16:15	16:15- 16:20
34. D. A. L. Loch , A. P. Ehasarian, P. Eh. Hovsepian, <i>Sheffield Hallam University,</i> “ Tailoring of HIPIMS Process Conditions for Improved Photocatalytic Performance of Reactively Synthesised Titanium Dioxide”	16:20- 16:35	16:35- 16:40
35 A. Mukherjee , A. Momeni, E. M. Staicu Casagrande, T. Minea, H. Khemliche, <i>University Paris Saclay,</i> “ Real-time monitoring of thin film growth by HiPIMS using Grazing Incidence Fast Atom Diffraction (GIFAD)”	16:40- 16:55	16:55- 17: 00

Coffee Break 17:00 – 17:15

16.06.2022, Seventh Afternoon session

Session Chairman: Prof. Arutiun P. Ehasarian, Sheffield Hallam University, UK.	Present ation time	Q&A
36. K. Leonova ¹ , N. Britun ² , S. Konstantinidis ¹ , ¹ University of Mons, Belgium, ² Nagoya University, Japan. "Hot magnetron sputtering with a Nb target studied by emission spectroscopy" .	17:15- 17:30	17:30- 17:35
34. N. Franzer ¹ , S. Trolier-McKinstry ² , F. He ² , J. Hrebik ¹ , K. Williams ¹ , D. Fulgoni ³ , ¹ Kurt J. Lesker Company, USA, ² Pennsylvania State University, ³ Kurt J. Lesker Company, UK, "HiPIMS With Novel Reactive Gas Control Method and Positive Voltage Reversal to Deposit AlScN"	17:35- 17:50	17:50- 17:55
35 C. R. Das , A. Ghosh, <i>Indian Institute of Technology Madras, India,</i> "On microstructure and mechanical characteristics of TiAlSiN deposited by High Power Impulse Magnetron Sputtering with variable silicon content"	17:55- 18:10	18:10- 18:15
Student Prize announcement. Closing remarks	18:15- 18:30	END OF CONFERENCE