

11th Symposium on Vacuum based Science and Technology
Kolobrzeg, November 19-21, 2019

Aquarius**Hotel***

Program

MONDAY, November 18

15.00 –	Hotel check-in
17.30 –	Welcome Reception
18.00 –	Dinner

TUESDAY, November 19

7.30 – 8.50	Breakfast
<i>Session A - Conference room Laguna2</i> <i>Session Chair: Prof. Witold Gulbiński</i>	
9:00 – 9:10	Opening of the Symposium
9:10 – 9:50	INV1 – Prof. Diederik Depla , Department of Solid State Physics, Ghent University (BE) <i>Modeling reactive magnetron sputtering: opportunities and challenges</i>
9:55 – 10:35	INV2 – Prof. Jindrich Musil , University of West Bohemia, Plzen (CZ) <i>Advanced hard nanocoatings deposited by magnetron sputtering: Present state and trends</i>
10:40 – 11:00	O1 – Fabrication of self-organized fishnet structures for carbon nanotube forest metamaterials <i>Adam Pander, Takatsugu Onishi, Akimitsu Hatta, and Hiroshi Furuta</i>
11:00 – 11:20	Coffee break
11:20 – 11:40	O2 – Electrical and optical properties of the WO ₃ thin films deposited by the GLAD magnetron sputtering technique <i>A. Rydosz, K. Kollbek, K. Marszałek, K. Dyndał, W. Andrysiewicz</i>
11:40 – 12:00	O3 – Quasi-amorphous, nanostructural CoCrMoC/a-C:H coatings for corrosion protection of medical grade steel <i>Ewa Dobruchowska, Tomasz Suszko, Grzegorz Greczynski, Dorota Adamczewska, Jerzy Morgiel, Witold Gulbiński</i>
12:00 – 12:20	O4 – Surface sintering of W-based powder targets performed via electromagnetic discharge conditions – novel approach of films synthesis in magnetron sputtering <i>B. Wicher, R. Chodun, M. Kubiś, K. Król, K. Nowakowska-Langier, K. Zdunek</i>
12:20 – 12:40	O5 – Electrical and optical properties of the thin ZnO layer with Al and Mg doped gradient compared to the multilayer structure based on the same materials <i>K Marszałek, G. Putynkowski, K. Leszczynska</i>
13.30 – 14.30	Lunch

Session B - Conference room Laguna2

Session Chair: Dr. Ewa Dobruchowska

15.00 – 15.40	INV3 – Prof. Tomas Nyberg , Ångström Laboratory Uppsala University (SE), <i>Studies of non-saturated reactive sputtering processes</i>
15.45 – 16.25	INV4 – Dr. Matjaž Panjan , Jožef Stefan Institute, Ljubljana (SL) <i>Self-organization of plasma in magnetron sputtering discharges</i>
16.30 – 16.50	O6 – Structure and properties of TiO ₂ /nanoTiO ₂ bimodal coatings obtained by a hybrid technique combining MS-PVD and ALD methods <i>M. Staszuk, D. Pakuła, Ł. Reimann, A. Kloc-Ptaszna</i>
16.55– 17.15	Coffee break
17.15 – 17.35	O7 – DC and AC PEO treatments of titanium substrate in acid electrolytes <i>Krzysztof Rokosz, Tadeusz Hryniewicz, Łukasz Dudek, Kornel Pietrzak, Raaen Steinar, Sofia Gaiaschi, Patrick Chapon, Winfried Malorny</i>
17.35 – 17.55	O8 – Magnetic field sensors based on an ultra-thin active channels <i>W. Koczorowski, S. El-Ahmar, M. Przychodnia, T. Grzela</i>
17.55 – 18.15	O9 – Experimental realization of double Hall sensor structure using vacuum based techniques <i>S. El-Ahmar, W. Koczorowski</i>
18.15 – 18.35	O10 – Thermal evolution of the platinum buffer layer on graphene/Ge(110)Si(110) samples <i>T. Grzela, M. Przychodnia, S. El-Ahmar, T. Ciuk, K. Kwiecień, R. Czajka, W. Koczorowski</i>
19.30 –	Dinner

WEDNESDAY November 20

7.30 – 8.50	Breakfast
Session C - Conference room Laguna2	
<i>Session Chair: Prof. Jolanta Baranowska</i>	
9:00 – 9:40	INV5 – Prof. Yuri Suchorski , Institute of Materials Chemistry, Vienna University of Technology, Vienna (AT) <i>Surface physics in UHV and catalysis on a nanoscale: a successful symbiosis?</i>
9:45 – 10:25	INV6 – Prof. Xiubo Tian , Institute of Plasma Surface Engineering & Equipment School of Materials Science & Engineering, Harbin Institute of Technology Harbin (CN) <i>High-current pulsed arc discharge for deposition of ta-C and DLC films</i>
10.30 – 10.50	O11 – Optimisation of ZrC gradient coatings <i>Szparaga Ł., Mydlowska K., Gilewicz A., Bartosik P., Ratajski J.</i>
10.50 – 11.10	O12 – Evolution of phase composition and antibacterial activity of ZrC thin films deposited by magnetron sputtering <i>Czerwińska E., Mydlowska K., Gilewicz A., Dobruchowska E., Szparaga, Ł., Jakubczyk E., Ceynowa P., Ratajski J.</i>
11.10 – 11.50	Coffee break Presentation of industry exhibitors <i>Conference room Laguna1</i> <i>Moderator: Prof. Bogdan Warcholiński</i>
11.50 – 12.10	O13 – Ultra-fast growth of cupric oxide thin films for photovoltaic applications <i>M. Ozga, B.S. Witkowski, J. Kaszewski, R. Pietruszka, P. Sybilski, M. Godlewski</i>
12.10 – 12.30	O14 – S-phase antimicrobial coatings deposited on austenitic stainless steel by reactive magnetron sputtering <i>Słowik J., Pendrak K., Fryska S., Baranowska J</i>

12.30 – 12.50	O15 – Surface and phase transformations of Mg-La supported cobalt catalysts for ammonia synthesis <i>Aleksander Albrecht, Adam Sarnecki, Paweł Adamski, Dariusz Moszyński</i>
12.50 – 13.10	O16 – Correlation between modulation frequency and enthalpy of atomization during pulsed magnetron sputtering of selected transition metals <i>G.W. Strzelecki, K.Nowakowska-Langier, S.Okrasa, M.Jacniak, M.Kuk, K.Zdunek</i>
13.30 – 14.30	Lunch

Session D - Conference room Laguna2	
<i>Session Chair: Prof. Michał Kulka</i>	
15.00 – 15.20	O17 – Investigation of thermomechanical effects in TiAlN coatings deposited by HIPIMS technique on WC-Co substrates <i>Myśliński P., Greczyński G., Szparaga Ł., Mydlowska K., Ratajski J.</i>
15.20 – 15.40	O18 – Effect of HIPIMS pulse mode and pulse parameters on reactive SiO _x deposition process <i>Anna W. Oniszczyk, Piotr Różański, Paweł Lesiuk, Arutjun P. Eghisarian, Daniel Loch</i>
15.40 – 16.00	O19 – Non-conventional diagnostics by calorimetric and force probes for plasma-based thin film deposition <i>H. Kersten, T. Trottenberg, A. Spethmann, M. Klette, L. Hansen</i>
16.00 – 16.20	O20 – Stability of Cu ₃ N obtained by pulse magnetron sputtering method after annealing <i>S. Okrasa, K. Nowakowska-Langier, R. Chodun, K. Król, G. Strzelecki, R. Minikayev, K. Namyślak, M. Wilczopolska, K. Zdunek</i>
16.20 – 16.40	O21 – Photovoltaic structures based on ZnO/Si heterojunction <i>R. Pietruszka, B.S. Witkowski, M. Ozga, M. Godlewski</i>
17.00 – 18.00	Coffee break Poster Session <i>Conference room Laguna1</i> <i>Chair: Prof. Witold Gulbiński</i>
19.00 –	Conference Dinner sponsored by TEPRO

THURSDAY November 21

7.30 – 9.00	Breakfast
Session E - Conference room Laguna2 <i>Session Chair: Prof. Bogdan Warcholiński</i>	
9.00 – 9.20	O22 – Modification of the amorphous FeSiB alloy surface layer by using interference pulsed laser heating <i>Agnieszka Radziszewska, Jan Kusiński, Olaf Czyz, Roman Ostrowski, Krzysztof Morawiec, Piotr Dłużewski, Małgorzata Kac</i>
9.20 – 9.40	O23 – The influence of laser texturing on the properties of PVD coatings <i>D. Pakuła, M. Staszuk, M. Pancielejko</i>
9.40 – 10.00	O24 – The physicochemical properties of the surface modified pure titanium by PVD method <i>Anna Woźniak, Marcin Adamiak</i>
10.00 – 10.20	O25 – Spectral investigation of EUV induced, low temperature plasmas created in gases and aerosols <i>A. Bartnik, W. Skrzeczanowski, P. Wachulak, T. Fok, Ł. Wegrzynski, J. Czwartos, H. Fiedorowicz, J. Kostecki</i>
10.20 – 10.40	O26 – Plasma-enhanced synthesis of nanostructured electrocatalysts for fuel cell and electrolyses applications <i>Gustav Sievers, Volker Brüser</i>
10.45 – 10.50	Closure of the Symposium
10.50– 11.15	Coffee break
– 12.00	Departure of participants

Clausius Session Educational Programme

*Koszalin University of Technology,
Raclawicka 15-17, hall (building A)
Chair: Prof. Witold Gulbiński*

11.00–11.15	Introduction <i>Prof. Witold Gulbiński</i>
11.15–13.15	Lecture: <i>Prof. Dr. Holger Kersten Institut for Experimental and Applied Physics, University Kiel, Germany, "The Universe - a world of plasma"</i>

SVC Tutorial Course

Conference room: Panorama (IV et.)

Instructor:

*Professor Arutiun P. Ehiasarian
Head of National HIPIMS Technology
Centre, Sheffield Hallam University, United
Kingdom.*

8.30 – 12.00	Fundamentals of High Power Impulse Magnetron Sputtering (HIPIMS) - I
12.00 – 13.00	Coffee-sandwich break
13.00 – 16.30	Fundamentals of High Power Impulse Magnetron Sputtering (HIPIMS) - II

List of posters

P1	Nanoscale model catalytic studies in UHV: bridging the high voltage gap	<i><u>P. Winkler</u>, <u>J. Zeininger</u>, <u>M. Raab</u>, <u>G. Rupprechter</u>, <u>Y. Suchorski</u></i>
P2	Nanoscale model catalytic studies in UHV: contribution to bridging the materials gap	<i><u>J. Zeininger</u>, <u>M. Raab</u>, <u>P. Winkler</u>, <u>G. Rupprechter</u>, <u>Y. Suchorski</u></i>
P3	Cylindrical magnetron with multiple dynamic areas of toroidal plasma and cathode or anode polarization	<i><u>Marek Betiuk</u>, <u>Zbigniew Łataś</u>, <u>Piotr Domanowski</u>, <u>Wojciech Gajewski</u>, <u>Marcin Żelechowski</u></i>
P4	Microfriction of ZrCN coatings characterized by atomic force microscopy	<i><u>T.A. Kuznetsova</u>, <u>V.A. Lapitskaya</u>, <u>S.A. Chizhik</u>, <u>B. Warcholinski</u>, <u>A. Gilewicz</u></i>
P5	Determination of fracture toughness of coatings by indentation method with the AFM cracks diagnosis	<i><u>V.A. Lapitskaya</u>, <u>T.A. Kuznetsova</u>, <u>S.A. Chizhik</u>, <u>B. Warcholiński</u>, <u>A. Gilewicz</u></i>
P6	DLC film-polymeric substrate interaction	<i><u>Agata Niemczyk</u>, <u>Dariusz Moszyński</u>, <u>Jolanta Baranowska</u></i>
P7	Trends in boriding under glow discharge conditions	<i><u>Michał Kulka</u></i>
P8	Low temperature nitriding of the nanobainitic X37CrMoV5-1 steel	<i><u>Michał Tacikowski</u>, <u>Jerzy Ratajski</u>, <u>Kinga Grabowska</u>, <u>Szymon Marciniak</u>, <u>Jacek Rudnicki</u>, <u>Paweł Marchlewski</u>, <u>Marcin Pisarek</u></i>
P9	The properties of AlCrBN coatings deposited using cathodic ARC evaporation	<i><u>A. Gilewicz</u>, <u>P. Myśliński</u>, <u>E. Dobruchowska</u>, <u>D. Murzyński</u>, <u>Z. Galocz</u>, <u>D. Jakrzewski</u>, <u>K. Szafirowicz</u>, <u>B. Warcholiński</u></i>
P10	Mechanical properties of AlCrN coatings deposited using cathodic ARC evaporation	<i><u>A. Gilewicz</u>, <u>P. Myslinski</u>, <u>R. Jedrzejewski</u>, <u>B. Warcholinski</u></i>
P11	Optimization of the architecture and properties of multilayer coating TiAlN/Cr/W-DLC for application on taps for austenitic steels	<i><u>J. Walkowicz</u>, <u>A. Czyżniewski</u>, <u>Z. Galocz</u>, <u>A. Urbanowicz</u>, <u>D. Ptaszkiewicz</u></i>
P12	Thermomechanical diagnostics of anti-wear systems HS6-5-2 steel substrate - AlCrN coating for the purposes of optimization of their PVD technology	<i><u>P. Myśliński</u>, <u>A. Gilewicz</u>, <u>K. Mydlowska</u>, <u>B. Warcholiński</u></i>
P13	Corrosion properties of Al-Si coating obtained by magnetron sputtering on steel X5CrNi18-10	<i><u>D. Murzyński</u>, <u>E. Dobruchowska</u>, <u>Ż. Zienkiewicz</u></i>