



2nd International EJC-PISE Workshop

Scope of Workshop

Plasma and Electron Beam Technologies for Protective Coatings

The 2nd International EJC-PISE Workshop on "Plasma and Electron Beam Technologies for Protective Coatings" will be held in Kiev, Ukraine, June 16-17, 2010.

The envisaged topic of the workshop concerning plasma and electron beam technologies for protective coatings among others to optimise the tribological characteristics for tools and components is of vital interest for national industrial economies due to losses of about 5% of the gross national product (GNP) caused by friction and abrasion. The support and strengthening of the specific knowledge for tribology characteristics and processes will lead to substantial savings by energy and material application as well as production and maintenance activities. Energy and raw material resources can be preserved, environmental damages are avoided and the industrial safety is improved.

Innovative hard material layers support the surface refining of different substrates. Thus wear-resistance can be raised, friction losses be minimized and the life span of functional parts substantially be improved.

In the Ukraine the coating technologies for the evaporation of hard materials on different substrates has a long research tradition. For example the International Center for Electron Beam Technologies is engaged in the research and development on electron beam (EB) evaporation and EB supported PVD processes. The Institute for Superhard Materials of the National Academy of Sciences of Ukraine as a large European science and technology center is working on the development of mono- and polycrystalline, dispersed materials and the enhancement of diamond and diamond-like films (DLC).

The workshop will be supported by the Arbeitsgemeinschaft industrieller Forschungsvereinigungen "Otto von Guericke" e.V." (AiF) and funded by the International Office of the Federal Ministry of Education and Research (BMBF) as well as the Ukrainian Ministry of Education and Research (MON).

Registration Fee

Regular registration fee 100 EUR

The registration fee includes the Come Together Event on Tuesday as well as the Social Event on Wednesday.

The stated conference fee is free of VAT.

In case of your cancellation the fee of EUR 20 will be charged before Mai 28, 2010. After that date, a refund is not possible.

Location

E.O.Paton Electric Welding Institute
11, Bozhenko str.
03680 Kiev
Ukraine

Conference Language

The official conference language is English. All oral and poster presentations as well as abstracts and manuscripts are required in English.

Venue

Kiev is the capital and the largest city of Ukraine, located in the north central part of the country on the Dnieper River. Kiev is an important industrial, scientific, educational and cultural centre of Eastern Europe. It is home to many high-tech industries, higher education institutions and world-famous historical landmarks. The city has an extensive infrastructure and highly developed system of public transport, including the Kiev Metro.

Information and Registration

Detailed Information is available on the EJC-PISE website:
www.ejc-pise.org,

Registration is possible only via Internet:
www.ejc-pise.org

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Plasma and Electron Beam Technologies for Protective Coatings



June 16–17, 2010
Kiev, Ukraine

www.ejc-pise.org

Organized by

European
Joint Committee on
Plasma and Ion
Surface Engineering

In Cooperation with

E.O.Paton Electric
Welding Institute



EFDS  European Society
of Thin Films

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Program

June 15, 2010, Tuesday

18:30 Come together Event

June 16, 2010, Wednesday

09:00–09:15 Welcome

Session 1: Protective coatings

09:15–10:00 Opening Lecture

Overview of HIPIMS and other new technologies for coating of tools and components
Thomas Krug, Hauzer Techno Coating, Venlo, NL

10:00–10:20 Recent progress in hard nanocomposite coatings,
Jindrich Musil, University of West Bohemia, Plzen, Czech Republic

10:20-10:40 Formation of advanced nanostructured coatings by hybrid electron beam process
Boris A. Movchan, E.O.Paton Electric Welding Institute, Kiev, Ukraine

10:40-11:00 Titanium and Titanium Nitride Coatings produced by Gas Flow Sputtering
Stanley Tang, Uwe Schulz, DLR-German Aerospace Center, Cologne, Germany

11:00-11:30 *coffee break*

Session 2: Wear protective coatings

11:30-12:00 Keynote Lecture

Ion Enhanced EB PVD process for protective coatings
Igor Belousov, Pratt & Whitney - Paton, Kiev, Ukraine

12:00-12:20 Carbon based wear protective coatings deposited by plasma-assisted high-rate electron beam evaporation
Jens-Peter Heinß, Fraunhofer FEP, Dresden, Germany

12:20-12:40 Perspective Processes of Supersonic Heterophase Transfer to Wear- and Corrosion-Resistant Coating Production for Machine Building Industry Competitive Products
S.E. Sholkin, CRISM "Prometey", St-Petersburg, Russia

12:40-13:00 Development of multilayer functional coatings based on nitrides and carbides of transition metals with plate interlayers (by methods of ion-plasma spraying) and areas of their application,
N. Novikov,

13:00-14:00 *Lunch*

Session 3: Hard material coatings I

14:00-14:30 Keynote Lecture

Magnetron sputtering of superhard nanocomposite coatings n-TiC/a-C with carbide underlayer
Yu. Borisov, E.O.Paton Electric Welding Institute, Kiev, Ukraine,

14:30-14:50 Hard Ti-Si-C-N films prepared by dc magnetron sputtering
S. Dub,

14:50-15:10 Application of Plasma Jets for Fabrication of Coatings from Metals, Hard Alloys, Ceramics and Their Combination
Alexander D.Pogrebnyak, Sumy Institute for Sufane Modification, Sumy, Ukraine

15:10-15:30 Hard Nanocomposite Ti-(Al,Cr,Y)-Si-C-N Coatings with Improved Wear- and Oxidation Resistance Produced by Ion Implantation Assisted Magnetron Sputtering
Ph.V. Kiryukhantsev-Korneev, National University of Science and Technology "MISIS", Moscow, Russia

15:30-16:00 *coffee break*

16:00-17:00 **Poster Session / brokerage event**

19:00-23:00 **Social Event**

June 17, 2010, Thursday

Session 4: Hard material coatings II

09:00-09:30 Keynote Lecture

Different Approaches to the Design of Superhard Materials and Coatings
Stan Veprek, University of Technology, Munich, Germany

09:30-09:50 R&D of NSC KIPT in the field of superhard coatings synthesis by use filtered vacuum-arc plasma flows
I. Aksenov, V. Belous, V.Strel'nitskij, National Science Center, Kharkov, Institute of Physics and Technology, Kharkov, Ukraine

09:50-10:10 Structure and Properties of Superhard and Hard Nano-Composite Protective Coatings on Base Zr-Ti-Si-N and Mo-Si
Igor Denisenko, Kharkov National University, Kharkov, Ukraine

Session 5: Thermal protection layers

10:10-10:40 Keynote Lecture

Electrical and optical properties of carbon films produced by magnetron sputtering
N. Kazimirov,

10:40-11:00 Thermal barrier coating systems on gamma titanium aluminides
Reinhold Braun, DLR, Cologne, Germany

11:00-11:30 *coffee break*

Session 6: Corrosion protection coatings

11:30-12:00 Keynote Lecture

Progress in Plasma Electrolytic Surface Treatments for Wear and Corrosion Protection of Lightweight Metals

Aleksey Yerokhin, University of Sheffield, United Kingdom

12:00-12:20 Corrosive properties of the plasma modified hydrogen titanium alloys
V. Pokhmurskii,

12:20-12:40 Thermal spraying of thermobarrier coatings with quasicrystalline and approximant structure,
Yu. Borisov; E.O.Paton Electric Welding Institute, Kiev, Ukraine

12:40-13:00 Protective high-damping coatings for GTE compressor blades
A. Ustinov,

13:00-13:15 **Closing Session – future activities, Closing ceremony**

European Joint Committee on Plasma and Ion Surface Engineering (EJC / PISE)

G. Bräuer (Chairman)

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