

**The report from the IWSP-2019: *Nanostructured surfaces*
(87th IUVSTA Workshop) conference sponsored by IUVSTA**

IWSP-2019



Uniwersytet
Wrocławski

Nanostructured surfaces

24 - 28 June 2019

Trzebnica, Poland

9th International Workshop on Surface Physics
87th IUVSTA workshop
satelite conference to IVC-21

Scope

Nanostructured materials
Electronic and atomic structures
Adsorption, desorption, diffusion
Metals, semiconductors, oxides
Low dimensional systems
Solid-gas and solid-liquid interfaces
Molecules at surfaces
Self-assembly and growth of thin films
Methods of surface characterization

Invited speakers

Grażyna Antczak (Wrocław, Poland)
Peter Broekmann (Bern, Switzerland)
Alessandro Fortunelli (Pisa, Italy)
Mieczysław Jałochowski (Lublin, Poland)
Takashi Kumagai (Berlin, Germany)
Nian Lin (Hong Kong, China)
Olaf Magnussen (Kiel, Germany)
Gareth Parkinson (Vienna, Austria)
Talat Rahman (Orlando, USA)
Frances Ross (Cambridge, USA)
Moritz Sokolowski (Bonn, Germany)
Martin Sterrer (Graz, Austria)
Christian Tusche (Jülich, Germany)



www.iwsp2019.ifd.uni.wroc.pl

Institute of Experimental Physics, University of Wrocław



Conference title: Nanostructured surfaces

URL of the conference: www.iwsp2019.ifd.uni.wroc.pl

Date of conference: 24-28 June 2019

Location: Hotel Trzebnica, ul. Leśna 2, 55-100 Trzebnica

Number of participants: 67

Number of invited lecturers: 13

The International Workshop on Surface Physics (IWSP-2019) was organized by the Institute of Experimental Physics of the University of Wrocław in Trzebnica from 24th till 28th of June 2019. IWSP-2019 was a 87th IUVSTA workshop and a satellite conference to the IVC-21. The purpose of the conference entitled “Nanostructured surfaces” was to provide an overview of the current state of research in this field, report the latest achievements, show perspectives and discuss the most probable paths of progress of surface science. The workshop was a platform for scientists who represented different fields such as physics, chemistry, experiment, and theory from universities and scientific laboratories. Among others, the scientific program of IWSP-2019 covered such phenomena as adsorption, desorption, diffusion of atoms and molecules on surfaces, molecular self-assembly and growth of thin films, nanostructured and functionalized materials, electronic and atomic structure of interfaces and low-dimensional systems, solid-gas and solid-liquid interfaces, as well as the methods of characterization of surface superstructures. However, other areas of frontier research related to understanding and controlling the physical and chemical properties of surfaces and interfaces were also represented. The scientific program of IWSP-2019 consisted of invited lectures (50 min), short oral contributions (25 min), and poster presentations. The high scientific level of the contributions combined with a friendly and relaxing atmosphere of the IWSP meetings allowed particularly stimulating discussions and a fruitful exchange of ideas – during as well as after the sessions. The workshops emphasized direct person-to-person contacts, facilitating an effective transfer of knowledge between world-renowned experts and early-career researchers. The IWSP-2019 poster looks as presented above.

Program of IWSP-2019

MONDAY, 24 JUNE

16:00 Bus to Trzebnica

17:00 Registration

18:00 Supper

20:00 Get together

TUESDAY, 25 JUNE

7:30 Breakfast

8:45 Workshop Opening

9:00 Frances M. Ross - PATTERNING NANOSTRUCTURES ON 2D MATERIALS VIA IN SITU TEM GROWTH EXPERIMENTS

9:50 Adam Busiakiewicz - TiO₂: FROM REVERSIBLE SEGREGATION OF TRANSITION METAL NANOSTRUCTURES FOR PHOTOCATALYSIS TO MODIFICATION OF GRAPHENE FOR OLED TECHNOLOGY

10:15 Marcin Pisarek - APPLICATION OF IN-SITU XPS SPECTROSCOPY FOR ANALYSIS THE CHEMISTRY OF PLASMA NITRIDED TiO₂ NANOTUBES
10:40 Coffee Break
11:15 Takashi Kumagai - PLASMON-INDUCED PHOTOPHYSICS AND PHOTOCHEMISTRY IN NANOCAVITY
12:05 Mikołaj Lewandowski - TUNING THE STRUCTURE OF ULTRATHIN FeO ISLANDS ON Ru(0001) BY OXIDATION/REDUCTION
12:30 Ying Wang - ON THE STRUCTURE OF ULTRATHIN FeO FILMS ON Ag(111)
13:00 Lunch
14:30 Gareth Parkinson - "SINGLE ATOM" CATALYSIS: AN ATOMIC-SCALE VIEW
15:20 Nika Spiridis - REDUCTION OF Fe₃O₄ FILMS ON Pt(111) - SURFACE STRUCTURE VS. COMPOSITION
15:45 Coffee Break
16:20 Nian Lin - METAL-ORGANIC π -CONJUGATED COORDINATION FRAMEWORKS SYNTHESIZED ON SURFACE
17:10 Anna Mandziak - STRUCTURAL AND MAGNETIC PROPERTIES OF TRANSITION METAL OXIDE THIN FILMS GROWN ON Ru(0001)
18:00 Supper
19:00 Poster Session

WEDNESDAY, 26 JUNE

7:30 Breakfast
9:00 Alessandro Fortunelli - COMPUTATIONAL MODELING OF NANOSTRUCTURED METAL SURFACES AND THEIR ELECTRONIC AND CATALYTIC PROPERTIES
9:50 Leszek Jurczyk - MODIFICATION OF THE RELATIVISTIC SURFACE BAND STRUCTURE OF Ti/Si(111) SYSTEM BY ADSORPTION OF O AND Cl
10:15 Tomasz Ossowski - DFT STUDY ON THE STRUCTURE OF ULTRATHIN FeO FILMS ON Ru(0001)
10:40 Coffee Break
11:15 Talat S. Rahman - TUNING PROPERTIES OF 2D MATERIALS: FROM CATALYTIC ACTIVITY TO SINGLE PHOTON EMISSION
12:05 Elwira Wachowicz - HYDROGEN INFLUENCE ON SURFACE MORPHOLOGY OF 4H-SiC{0001} SURFACES
12:30 Damian Nieckarz - 2D SELF-ASSEMBLED NANOMATERIALS – COMPUTER SIMULATIONS AND EXPERIMENT
13:00 Lunch
14:30 Christian Tusche - NONLOCAL ELECTRON CORRELATIONS IN AN ITINERANT FERROMAGNET MAPPED BY SPIN-RESOLVED MOMENTUM MICROSCOPY
15:20 Jacek Kołodziej - ELECTRONIC STRUCTURE AND STM IMAGING OF THE KBr/InSb INTERFACE
15:45 Coffee break
16:20 Martin Sterrer - CONTROL OF CHARGE TRANSFER INTO ORGANIC MOLECULES ON ULTRATHIN MgO(001) FILMS
17:10 Szymon Godlewski - HIGHER ACENES GENERATED BY ON-SURFACE DEHYDROGENATION
17:35 Tomasz Rerek - FORMATION AND OPTICAL PROPERTIES OF THIN TIN AND GOLD FILMS PRODUCED BY PVD METHOD
19:00 Workshop dinner

THURSDAY, 27 JUNE

7:30 Breakfast

9:00 Moritz Sokolowski - ORGANIC MOLECULES OBSERVED ON SURFACES BY FLUORESCENCE SPECTROSCOPY

9:50 Christine Brülke - INVESTIGATION OF THE VERTICAL STRUCTURE OF hBN ON Cu(111) VIA NIXSW AND SPA-LEED

10:15 Krisztian Palotás - HEXAGONAL BORON NITRIDE NANOMESH STRUCTURE TUNED BY GOLDRHODIUM SURFACE ALLOY

10:40 Coffee break

11:15 Mieczysław Jałochowski - ANTIMONENE ELECTRON BAND STRUCTURE ENGINEERING

12:05 Lucyna Żurawek - Pb NANOCHAINS ON THE Si(113) SURFACE

12:30 Shiva L. Udachan - IMPACT OF SUBSTRATE TEMPERATURE ON OPTICAL CONSTANTS OF CHROMIUM NANO-FILMS

13:00 Lunch

14:30 Olaf Magnussen - ADSORBATE DYNAMICS AT ELECTROCHEMICAL INTERFACES

15:20 Bartosz Mądry - MOLECULAR SELF-ASSEMBLY OF PORPHYRINS ON Au(111) PRECOVERED BY COPPER AND SULPHATE

15:45 Coffee break

16:20 Peter Broekmann - POWER-TO-VALUE: NOVEL CATALYSTS FOR THE ELECTROCHEMICAL CONVERSION OF CO₂

17:10 Andrzej Mischczuk - PROPERTIES OF ULTRATHIN Pt LAYERS ON Cu(111) REVEALED BY AES, LEED AND DEPEs

17:35 Rafał Lewandków - THERMALLY INDUCED REACTIONS BETWEEN A GaN(0001) SUBSTRATE AND HAFNIUM LAYER

19:00 Barbeque supper

FRIDAY, 28 JUNE

7:30 Breakfast

9:00 Grażyna Antczak - GOLD (100) SURFACE: RECONSTRUCTION, DEFECTS AND SURFACE DIFFUSION

9:50 Karolina Idczak - PHYSICOCHEMICAL PROPERTIES OF THIN Gd FILMS ON 4HSiC(0001)—GRAPHENE

10:15 Ireneusz Morawski - Pb INTERCALATION OF GRAPHENE ON Ru(0001) – AES, LEED AND DEPEs STUDY

10:40 Coffee break

13:00 Lunch

14:00 Bus to Wrocław

Amount of the financial support granted by IUVSTA: **6 000 Euro (25 782 PLN** at the moment of money transfer arrival at the conference account - 29.03.2019). PLN is used in this report as all expenses were done in this currency.

List of invited lecturers

1. **Grażyna Antczak** (Wrocław, Poland)
2. **Peter Broekmann** (Bern, Switzerland)

3. **Alessandro Fortunelli** (Pisa, Italy)
4. **Mieczysław Jałochowski** (Lublin, Poland)
5. **Takashi Kumagai** (Berlin, Germany)
6. **Nian Lin** (Hong Kong, China)
7. **Olaf Magnussen** (Kiel, Germany)
8. **Gareth Parkinson** (Vienna, Austria)
9. **Talat Rahman** (Orlando, USA)
10. **Frances M. Ross** (Cambridge, USA) - *2018 Theodore E. Madey Award*
11. **Moritz Sokolowski** (Bonn, Germany)
12. **Martin Sterrer** (Graz, Austria)
13. **Christian Tusche** (Jülich, Germany)

The conference fees of 500 Euro or 2000 PLN (which included full board and lodging) of all the invited speakers listed above were waived, and covered almost in full with the IUVESTA support: 13x500 € = **6 500 €** or 13x2000 PLN = **26 000 PLN**.

List of attendants

No.	Family name	First name	Affiliation	Country
1	Kumagai	Takashi	Fritz-Haber Institute of the Max-Planck Society	Germany
2	Magnussen	Olaf	Institute of Experimental and Applied Physics, Kiel University	Germany
3	Sterrer	Martin	Institute of Physics, University of Graz	Austria
4	Ross	Frances M.	Massachusetts Institute of Technology, Department of Materials Science and Engineering	USA
5	Antczak	Grażyna	Institute of Experimental Physics, University of Wrocław	Poland
6	Sokolowski	Moritz	Universität Bonn, Institut für Physikalische und Theoretische Chemie	Germany
7	Parkinson	Gareth	Technische Universität Wien	Austria
8	Lin	Nian	Department of Physics, The Hong Kong University of Science and Technology	China
9	Jałochowski	Mieczysław	Maria Curie-Skłodowska University, Lublin	Poland
10	Fortunelli	Alessandro	Consiglio Nazionale delle Ricerche, CNR-ICCOM	Italy
11	Tusche	Christian	Forschungszentrum Jülich GmbH	Germany
12	Rahman	Talat Shahnaz	University of Central Florida, Orlando	USA
13	Vesztegom	Soma	Department of Chemistry and Biochemistry, University of Bern	Switzerland
14	Lament	Katarzyna	Institute of Experimental Physics, University of Wrocław	Poland

15	Kovalchuk	Serhii	Institute of Experimental Physics, University of Wrocław	Poland
16	Morawski	Ireneusz	Institute of Experimental Physics, University of Wrocław	Poland
17	Skorupski	Kamil	Institute of Experimental Physics, University of Wrocław	Poland
18	Kołodziejczyk	Paweł	Institute of Experimental Physics, University of Wrocław	Poland
19	Nowicki	Marek	Institute of Experimental Physics, University of Wrocław	Poland
20	Kisiel	Andrzej	EDVAC	Poland
21	Kucharczyk	Robert	Institute of Experimental Physics, University of Wrocław	Poland
22	Mandziak	Anna	Institute of Chemical Physics "Rocasolano" Madrid, Alba Synchrotron Barcelona	Spain
23	Mądry	Bartosz	Institute of Experimental Physics, University of Wrocław	Poland
24	Sabik	Agata	Institute of Experimental Physics, University of Wrocław	Poland
25	Pisarek	Marcin	Institute of Physical Chemistry, Polish Academy of Science, Warsaw	Poland
26	Kruk	Karolina	Institute of Experimental Physics, University of Wrocław	Poland
27	Bryl	Robert	Institute of Experimental Physics, University of Wrocław	Poland
28	Skowroński	Łukasz	UTP University of Science and Technology in Bydgoszcz, Institute of Mathematics and Physics	Poland
29	Rerek	Tomasz	Institute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University in Torun	Poland
30	Kopyściński	Krzysztof	Institute of Experimental Physics, University of Wrocław	Poland
31	Bukaluk	Antoni	UTP University of Science and Technology in Bydgoszcz, Institute of Mathematics and Physics	Poland
32	Bodek	Łukasz	Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University	Poland
33	Brülke	Christine	Institut für Physikalische und Theoretische Chemie, Universität Bonn	Germany
34	Kny	Anna	Institut für Physikalische und Theoretische Chemie, Universität Bonn	Germany
35	Pabianek	Katarzyna	Department of Solid State Physics, University of Lodz	Poland
36	Godlewski	Szymon	Faculty of Physics, Astronomy, and Applied Computer Science, Jagiellonian University	Poland

37	Trzcinski	Marek	UTP University of Science and Technology in Bydgoszcz, Institute of Mathematics and Physics	Poland
38	Idczak	Karolina	Institute of Experimental Physics, University of Wrocław	Poland
39	Staniorowski	Piotr	Institute of Experimental Physics, University of Wrocław	Poland
40	Humberg	Niklas	Institut für Physikalische und Theoretische Chemie, Universität Bonn	Germany
41	Palotas	Krisztian	Wigner Research Center for Physics, Hungarian Academy of Sciences	Hungary
42	Nieckarz	Damian	Department of Theoretical Chemistry, Maria Curie-Skłodowska University	Poland
43	Trembułowicz	Artur	Institute of Experimental Physics, University of Wrocław	Poland
44	Lewandków	Rafał	Institute of Experimental Physics, University of Wrocław	Poland
45	Kurzyna	Marcin	Maria Curie-Skłodowska University, Department of Surface and Nanostructures Physics	Poland
46	Kołodziej	Jacek	Faculty of Physics, Astronomy, and Applied Computer Science, Jagiellonian University	Poland
47	Czerniak	Grażyna	UTP University of Science and Technology in Bydgoszcz, Institute of Mathematics and Physics	Poland
48	Dittmar-Wituski	Adam	UTP University of Science and Technology in Bydgoszcz, Institute of Mathematics and Physics	Poland
49	Spiridis	Nika	Jerzy Haber Institute of Catalysis and Surface Chemistry PAS, Kraków	Poland
50	Bera	Abhijit	Physical Chemistry, Ruhr-Universität Bochum	Germany
51	Miszczyk	Andrzej	Institute of Experimental Physics, University of Wrocław	Poland
52	Puchalska	Agnieszka	Institute of Experimental Physics, University of Wrocław	Poland
53	Markowski	Leszek	Institute of Experimental Physics, University of Wrocław	Poland
54	Ossowski	Tomasz	Institute of Experimental Physics, University of Wrocław	Poland
55	Stróżak	Mirosław	Institute of Physics, Maria Curie-Skłodowska University, Lublin	Poland
56	Dachniewicz	Marek	Institute of Physics, Maria Curie-Skłodowska University, Lublin	Poland
57	Żurawek	Lucyna	Institute of Physics, Maria Curie-Skłodowska University, Lublin	Poland
58	Jurczyszyn	Leszek	Institute of Experimental Physics, University of Wrocław	Poland

59	Lewandowski	Mikołaj	NanoBioMedical Centre, Adam Mickiewicz University in Poznań	Poland
60	Wang	Ying	NanoBioMedical Centre, Adam Mickiewicz University in Poznań	Poland
61	Wiejak	Marcin	Institute of Experimental Physics, University of Wrocław	Poland
62	Naparty	Mieczysław	UTP University of Science and Technology in Bydgoszcz, Institute of Mathematics and Physics	Poland
63	Kiejna	Adam	Institute of Experimental Physics, University of Wrocław	Poland
64	Wachowicz	Elwira	Institute of Experimental Physics, University of Wrocław	Poland
65	Krawczyk	Monika	Institute of Experimental Physics, University of Wrocław	Poland
66	Busiakiewicz	Adam	University of Lodz, Department of Solid State Physics	Poland
67	Kamiński	Wojciech	Institute of Experimental Physics, University of Wrocław	Poland

The information about the IWSP-2019: *Nanostructured surfaces* (87th IUUSTA Workshop) has also been presented in the IUUSTA NEWS BULLETIN No 179, p. 14.

Respectfully submitted, August 14, 2019

On behalf of the Polish Vacuum Society
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 President-Elect of Polish Vacuum Society
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