



Union Internationale Pour La Science, La Technique et Les Applications du Vide  
International Union for Vacuum Science, Technique and Applications  
Internationale Union für Vakuum Forschung, Technik und Anwendung

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Wishing you Happy Holidays and a Successful, Healthy 2019!

Ivan Petrov

IUVSTA Communications Committee Chairman





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## Executive Council Meeting 128, Power House Museum, Sydney, Australia

**Christoph Eisenmenger-Sittner, [christoph.eisenmenger@ifp.tuwien.ac.at](mailto:christoph.eisenmenger@ifp.tuwien.ac.at)**

ECM 128 was held on Sunday, August 12<sup>th</sup> 2018 at the Power House Museum in Sydney, Australia. The President highlighted some important activities that have been taking place including the 60 year anniversary, IUVSTA book, and co-branding activities of a new prize between EBARA and IUVSTA. He would like to see the different national societies to use the 60 years anniversary as a tool to engage further and embrace the opportunity this year. He also outlined the formation of a matrix structure to include themes that cut through the different divisions, creating a more coherent organisation to help improve visibility. Finally, the President stated the importance of our own sustainability, balancing the need versus the costs related to footprint and time.

The Secretary General, Christoph Eisenmenger-Sittner first expressed his thanks to the Vacuum Society of the Philippines, represented by their Alternate Councillor, Joe Greene, for having organized an excellent ECM 127 in Cebu Island. He also thanked the Vacuum Society of Australia for taking the effort to organize ECM 128 here in the vibrant city of Sydney which proved to be an excellent choice as a meeting venue for this Executive Council Meeting as well as for the VASSCAA 9 conference which was due to take place right after ECM 128.

After that the Secretary General announced that ICSU has merged with the International Social Science Council (ISSC) to form International Science Council (ISC). This merger was approved by the members of both organizations in a virtual general assembly in May 2018. No consequences for the Union will arise for at least three years to come.

At ECM 128, no decisions on future ECMs were due since all remaining ECMs of the Triennium, i. e. ECM 129, to be held in Regensburg, Germany from 29<sup>th</sup> – 31<sup>st</sup> March, 2019, ECM 130 and 131 (first formal meeting of the new triennium), in conjunction with IVC 21 in Malmö, July 1 – 5, 2019, are fixed. Also the second meeting of the new triennium, ECM 132, will be by invitation of the incoming President, Anouk Galtayries.



**ECM128 participants**





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Following the Secretary General's report the treasurer, Francois Reniers, presented the finance report. All financial items of the Union were found to be in good order. Many membership fees for 2018 were already paid, and the treasurer urged the representatives of societies who did not pay their fees yet, to do so, as these contributions constitute an important part of the Union's financial basis.

Moving on in the agenda, first the Secretary General informed ECM that the Vacuum Society of Japan and the Surface Science Society of Japan had merged to The Japan Society of Vacuum and Surface Science. The changes in the statutes of the new society, as compared to the statutes of the Vacuum Society of Japan were found to be minor, and the merger was therefore unanimously approved by ECM 128. Also the exchange of the Alternate Councillor of the Brazilian Vacuum Society, Rogerio Pinto Mota by Marcelo Juni Ferreira was approved, since it was stated that, because Marcelo Juni Ferreira is based at the European Spallation Source (ESS) in Sweden, he could more easily join the meetings of the Union, which frequently happen in European countries. Finally, ECM 128 approved to finance the winner of the re-instated Medard W. Welch International Scholarship, who was chosen from 9 applicants. The selected candidate was Abdul Wasy Zia from Hong Kong to visit the laboratory of Mohan Sankaran at Case Western Reserve University, USA during summer 2019. The Scientific Director, David Ruzic, commented on the great success of the Welch Scholarship. He considered the 9 applications received as an appropriate number, since it is high enough to have decent competition, and low enough to give the award committee the possibility to thoroughly scrutinize the different applications. He thanked the members of the Welch committee for their excellent work.

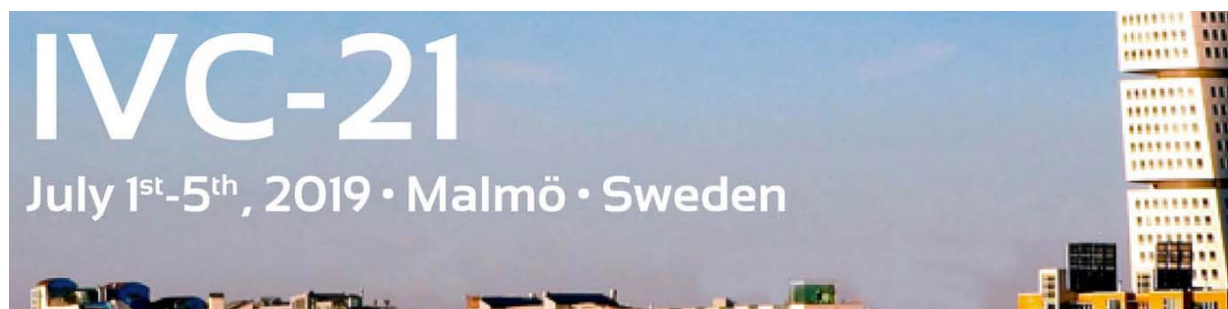
ECM 128 continued with the STD report. The STD had considered two proposals for workshops which had been recommended by the STD for submission to the ECM. The proposals were entitled "Towards Reality in Nanoscale Materials", to be held in Levi, Finland, February 2019 and "Biological and Soft matter sample preparations for high-resolution imaging using vacuum techniques", to be held in Zakopane Poland, in May 2019. Both proposals were approved by ECM 128, where the proposal with title "Towards Reality in Nanoscale Materials", to be held in Levi, Finland, February 2019 will be the 88<sup>th</sup> IUVSTA workshop. As the next, the 89<sup>th</sup> IUVSTA workshop holding the title "Biological and Soft matter sample preparations for high-resolution imaging using vacuum techniques", to be held in Zakopane Poland, in May 2019. Also proposals for a Technical Training Course in Brazil, entitled "Vacuum, Plasma; Surfaces and Thin Films", which will be the Technical Training Course #20 and for a Short Course in Slovenia, "Recent advances in plasma techniques for tailoring surfaces and films", were approved.

After these votes on Schools and Workshops the Scientific Director, David Ruzic, reminded the delegates to join the Highlights Seminar at VASSCAA 9 to give a proper audience to the division representatives presenting the highlights of their respective scientific divisions. He also invited the technical divisions and Chairs to send a list of different themes the division works on, in helping to formulate the themes of the division.

Finally, the committees reported on their work done during Friday and Saturday, and after these reports the President of the Vacuum Society of Australia, Anton Stampfl, briefly presented the society. He thanked the Union for holding the meeting in Australia and emphasised the commitment of the Society to actively work within the Union. The IUVSTA President, Lars Montelius, thanked all representatives of VSA for an extremely well organised and very good meeting.

After the successful completion of the Sunday morning meetings the participants were invited to have lunch and to continue discussions before departing to their respective destinations or to the VASSCAA 9 meeting.





## NEWS IVC-21

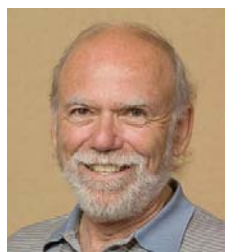
*Registration & Abstract submission are now open!*

**<https://mkon.nu/IVC21>**

### Key dates

- Deadline abstract submission: February 1st, 2019
- Author notification: March 20th, 2019
- Deadline early bird: April 15th, 2019

### Confirmed Plenary Speakers



**Barry Barish**  
2017 Nobel Prize  
in Physics



**Evelyn Hu**



**Molly M. Stevens**



**Robert  
Feidenhansl**



**Carl Brockmeyer**



**Hiroshi Amano**  
2014 Nobel Prize  
in Physics

**Dear IUVSTA Councillors and Division Members,  
Please, promote actively the IVC21 program within your Societies**





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## From the IUVSTA Awards Committee

**Martin Wuest [Martin.Wuest@inficon.com]**

The International Union for Vacuum Science Technique and Applications (IUVSTA) awards several prizes and awards to which I would like to draw your attention:

- The newly established **IUVSTA/EBARA award** recognizes an excellent young researcher or engineer to support innovation in environmentally friendly solutions in the area of vacuum-related science and technologies.

The award consists of EUR 3000 + invited lecture at IVC

**Deadline; February 15, 2019**

- **The IUVSTA Prize for Science** is awarded every three years to recognize and encourage outstanding internationally-acclaimed research in the fields of interest to the IUVSTA,

The award consists of a cash award (EUR 3000), a struck medal, a certificate and travel support + plenary lecture at IVC.

**Deadline: Jan 25, 2019**

- **The IUVSTA Prize for Technology** is awarded every three years to recognize and encourage outstanding internationally-acclaimed achievements in technology and instrumentation in the fields of interest to the IUVSTA,

The award consists of a cash award (EUR 3000), a struck medal, a certificate and travel support + plenary lecture at IVC

**Deadline; Jan 25, 2019**

- **The Medard W. Welch International Scholarship** is awarded every year to support a young postgraduate scientist for working for one year in a country in which he/she has not previously studied.

The scholarship consists of USD 15000

**Deadline: Spring 2019**

- **The Elsevier Student Travel** Awards are awarded to a number of students or young scientists who give a presentation at a IUVSTA conference.

The award consists of typically EUR 500.-

**Next deadline for IVC-21: Jan 7, 2019**

**Further details can be found at <http://iuvsta.org/awards-scholarships/>**





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## 83<sup>rd</sup> IUVSTA Workshop “New Horizons in Boron-Containing Coatings: Modelling, Synthesis and Applications” 2 – 6 September 2018, Vadstena, Sweden

Ivan Petrov, [petrov@illinois.edu](mailto:petrov@illinois.edu)

The workshop focused on the synthesis, properties, defect structure, first-principles design, and applications of different types of boron-containing protective and functional thin films and coatings. The sessions involved the following topics:

- Modelling and simulation of structure/property relationships for novel B-containing materials
- Control of nanostructure/composition during PVD and CVD synthesis
- Synthesis of targets for arc and magnetron sputtering; new precursors for CVD
- Protective coatings: hard, wear-, corrosion-, low-friction, high-temperature application
- Coatings for x-ray and neutron detectors and optics
- Challenges for manufacturing technologies of boride sputtering targets and arc cathodes

The workshop attracted a large number of participants, 74, from 17 countries: Sweden, China, Germany, Austria, USA, France, Israel, Czech Republic, Bulgaria, Taiwan, Lebanon, Hungary, Japan, Slovakia, Mexico, UK, and Liechtenstein. The program included 14 invited speakers and 21 contributed talks. A very lively poster session included 13 presentations. There were plenty of discussion time after each presentation and in two separate sessions. The attendees appreciated the wide ranging topics spanning from industrial manufacturing to academic advances in synthesis, characterization and modelling. The overall conclusion of the workshop is that the borides/boron-containing coatings have emerged as the next generation of hard, wear-, oxidation- and corrosion-resistant coatings and with many leading research groups dedicating significant effort in this area.

The attendees enjoyed the beautiful historic city of Vadstena at the lake Vättern with a most perfect Swedish summer weather. The social program included a guided tour and a pleasant dinner at the medieval cloisters/the workshop venue and an theatric night tour of the Vadstena Castle,



One of the most attended IUVSTA workshops





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## 84<sup>th</sup> IUVSTA Workshop “Surface Micro-Spectroscopy and Spectro-Microscopy of Electrical Phenomena: Advanced Methodologies for Nano-Characterization of Electronic Surface Phenomena” 2-5 Sept, 2018, Weizmann Institute of Science, Rehovot ISRAEL Sidney Cohen [Sidney.Cohen@weizmann.ac.il]

The workshop was organized under the leadership of Sidney Cohen (Secretary of IUVSTA NSD division) and Hagai Cohen, both from Weizmann Institute together with Christian Teichert, University of Leoben, Austria, (vice-chair of NSD division). The workshop was promoted by the Nanometer Structures Division (NSD) with the support of Surface Science Division (SSD). The scientific committee Shahall Ilanim and Ernesto Joselevich both from Weizmann Institute, and Ana G Silva from Universidade Nova de Lisboa (Chair of the NSD division).

The goal of this focused workshop was to bring together top researchers investigating electrical phenomena at interfaces, with emphasis on techniques combining high spatial and spectral resolution. Advanced experimental approaches were presented, along with theoretical lectures, thus forming a strong theme for discussions. Sixty attendees representing ten countries participated. The presentations were almost evenly split between invited talks, contributed talks, and posters. The conference was structured to encourage deep discussions through interactions within and outside the lecture hall.



**The smiling participants**

The concept of interfaces played a central role in several varied aspects: the boundaries spatially separating two entities; the interface between theory and experiment; the interface between spectroscopy and microscopy as two different experimental approaches; and the interplay between electrical and other physical properties. In each of those categories, new features potentially arise, unique to the meeting point between the conceptually pristine fields and, to a large extent, these features were at the focus of the workshop. Stimulating discussions inside and outside of the lecture hall gained





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significantly from the interdisciplinary profile of the audience. Thus, many participants - both veteran and younger - commented on how much they had learned during the week.

Sessions began Sunday morning and ran through the day (with brief tour of Weizmann campus during the lunch break). Poster presenters that evening were given two minute “sound-bites” to summarize their poster and the ensuing session, accompanied by a cocktail dinner kept an energetic presence in the hall well into the evening. Monday’s scientific sessions ended by early evening to allow a brief tour of parts of Tel Aviv and of Jaffa (the oldest still functional sea port in the world), culminating in dinner at a traditional middle-eastern restaurant. Tuesday was a full lecture day. Wednesday morning’s sessions were capped off by a round- table discussion, which began by considering the importance of the gap between what one can measure and the phenomena occurring “out of sight”. The conversation developed into several interesting topics, eventually leading to a lively discussion on the fallibility of the scientific review process. The enthusiastic and dynamic discussions made it quite hard to force the session to a close. The final workshop event consisted of a short tour to the Old City in Jerusalem. Being a site holy to Judaism, Islam, and Christianity, the participants were given a brief walking tour and overview of the religious landmarks. A pleasant dinner at an ethnic restaurant concluded not only a perfect day but a workshop which will long be remembered by all participants.



**Lively coffee-break discussions**



**Co-Chairs: Hagai Cohen (left) and Sidney Cohen (right)**





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## The 85th IUVSTA Workshop on Nanoporous Materials for Green Energy Conversion and Storage, 14-19 October 2018, Schloss Seggau (Seggau Castle), Austria

**Christian Mitterer [Christian.Mitterer@unileoben.ac.at]**

The 85th IUVSTA Workshop on Nanoporous Materials for Green Energy Conversion and Storage was held at Schloss Seggau (Seggau Castle), close to Graz, Austria, from 14-19 October 2018. Within the 4.5 days workshop, issues and challenges regarding the implementation of nanoporous materials, such as activated carbons, metal-organic frameworks, polymers of intrinsic microporosity and novel composites, for energy conversion and storage purposes combined with a minimal carbon footprint for the environment were addressed by 18 invited speakers and within 10 contributed talks and 4 poster presentations. In addition, two round-table discussions and a tutorial on scientific writing were held. The workshop focused mainly on the emerging role of such materials towards

- conversion of energy into different forms using currently available green technologies, including solar cells and fuel cells,
- storage of highly energy-dense and environmental friendly gases, such as hydrogen and methane, and
- electrochemical energy storage using batteries, supercapacitors and hybrid technologies.

The workshop was with 31 attendees from 12 different countries - quite small, but it was an extremely successful scientific event with very intensive discussions. Social activities included a guided tour to Seggau Castle (first parts were built in the 12th century) and a wine tasting on the more than 300 years old wine cellar of the castle. We plan to organize another IUVSTA workshop on a follow-up topic, most probably in 2021, in Germany.

The workshop has been sponsored by IUVSTA, the Austrian Vacuum Society, Montanuniversität Leoben and the Materials Center Leoben.







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## 60<sup>th</sup> anniversary of IUVSTA at the XI International Conference on Surfaces, Materials and Vacuum, Mexico, September 24-28 2018

**Emmanuel Haro Poniatowski**, Sociedad Mexicana de Ciencia y Tecnología de Superficies y Materiales (SMCTSM)  
IUVSTA Mexican Councillor, [haro@xanum.uam.mx]

In the frame of the XI International Conference on Surfaces, Materials and Vacuum held in Playa del Carmen State of Quintana Roo in México September 24-28 2018, a celebration ceremony dedicated to the 60<sup>th</sup> anniversary of IUVSTA was held. For the conference 527 abstracts were accepted and 417 participants registered in 16 symposia. We had 8 institutional and 12 industrial sponsors. This has been the most successful meeting in the records of our society. It is worthwhile mentioning that the *2018 Plenary and Subcommittee Meetings of ISO/TC201* (Surface Chemical Analysis) was also hosted by our society during the weekend before (20-22 September) and many of the attendees stayed the following week and gave talks in our conference. On Monday 24<sup>th</sup> in the afternoon, we had the IUVSTA celebration chaired by Joe Greene and David Ruzic as official representatives of IUVSTA, who explained the origin, goals and activities of the Union. The celebration continued with three plenary lectures that were given by; María Sánchez Colina President of the Cuban Physical Society and Professor at the Universidad de la Habana, Karen Volke-Sepulveda Professor at the Instituto de Física of the Universidad Nacional Autónoma de México (UNAM) and Marina Rincón Gonzalez Professor at the Instituto de Energías Renovables of UNAM. The titles of the talks were: "Surface Photovoltage Spectroscopy, Application For Characterization of Materials and Devices", "Structured Waves and Wave Traps in Optics and Acoustics" and "Low Dimensional Materials in Energy Conversion and Storage: Research at IER-UNAM" respectively. The audience was of about 200 persons. The lectures were followed by a cocktail party that everybody enjoyed.







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## Pakistan Vacuum Society celebrates IUVSTA 60 with a big event

**Dr. Javaid Ahsan Bhatti, President PVS, [javaidbhatti@yahoo.com]**

Pakistan Vacuum Society (PVS), in compliance to Prof. Dr. Anouk Galtayries, IUVSTA President-Elect announcement to national vacuum societies to celebrate 2018 as the 60<sup>th</sup> year of IUVSTA with national events to promote the IUVSTA cause to their respective countries, PVS decided to start the celebrations with a national course on the topic: "Innovations in Industrial Vacuum Systems (IIVS)" from April 17-19, 2018, at Islamabad Hotel, Islamabad. This event was designed to provide young entrepreneurs, engineers, technicians and students an opportunity to interact with eminent experts and specialists working in the field of vacuum science and technology to explore the latest trends of vacuum technology and its modern applications. It also helped the participants to develop expertise in the applied areas of vacuum technology. Experts delivered lectures on fundamentals of vacuum science and technology, vacuum generation techniques, vacuum measurements, gauge calibrations, vacuum system design and fabrication, leak detection and rectification techniques, vacuum sputtering systems, vacuum furnaces, electron microscopy, semi-conductor industry, Bio-interfaces, Nano-technology, lasers, thin films coatings, nano-technology, vacuum insulation and renewable energy technologies.

The main objective of the course was to provide knowledge about the vacuum science & technology and its applications in the modern and applied fields of research and industrial scale production: To cope with the latest trends and the future role of the vacuum technology in the research and industrial applications; To realize the barriers for the adaptation and promotion of vacuum science and technology; to resolve the practical problems related to this technology and to enhance collaborative research and development activities among the various industries, research organizations and universities of the country. The course was inaugurated by the Vice Chancellor, Engineer Imran Rehman. He remarked that vacuum technology has played a dramatic role not only in the improvement of the quality of general consumer items but also has provided new dimensions to the industrial processes for innovative products. Dr. Javaid Ahsan Bhatti, President of Pakistan Vacuum Society, introduced the IUVSTA and its programs, highlighting the celebration of IUVSTA60, to the audience. Over sixty participants from various universities, research institutions and industries took part in the training program. Majority of students and industrial technicians joined the course from cities, like Karachi, Quetta, Lahore, Sialkot, Gujranwala, Peshawar as well as Islamabad, etc. PVS provided financial support in registration fee, travel and stay to deserving participants from PVS own funds. Over 20 experts from industry and universities delivered lectures on various topics of vacuum science and technology. Practical demonstrations and hands on training was also a part of the training program. Participants of the course freely discussed their specific industrial problems with the experts to get their solutions. An exhibition of vacuum technology equipment by private firms was also organized in the hotel during the event. At the end course certificates and souvenirs were awarded to the course attendees.



**Dr. J. A. Bhatti highlighting the role of IUVSTA**



**Practical demonstrations and hands on training**





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## IUVSTA-86/ASEVA-28 WORKSHOP: Nanoscale oxide systems in Physics and Chemistry

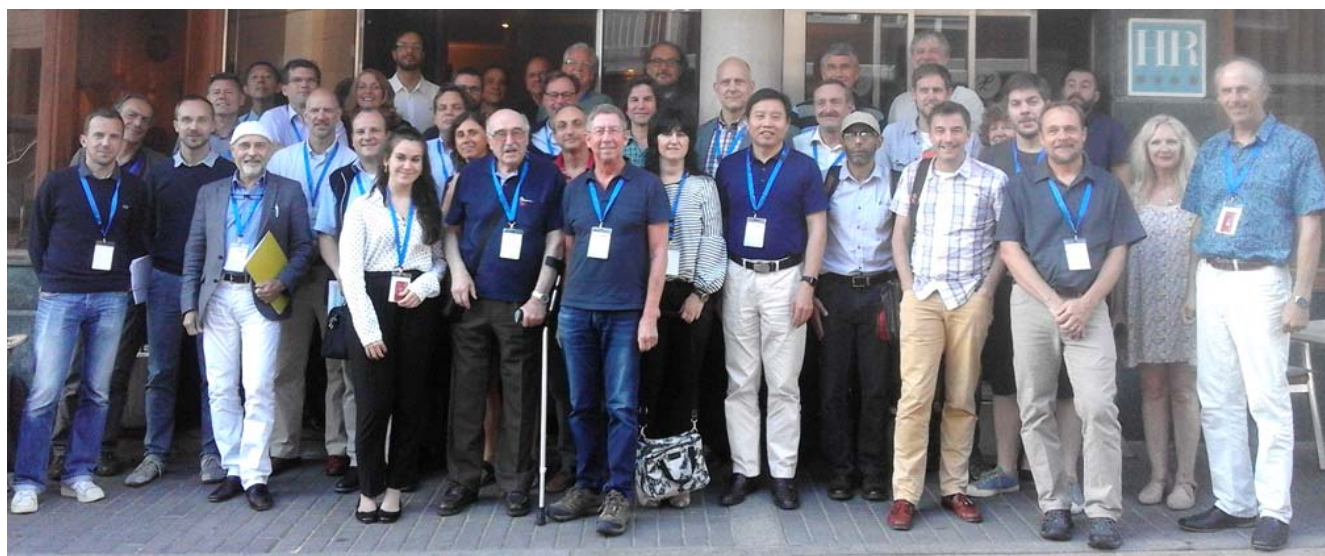
**Falko Netzer, Geoff Thornton, IPC Chairmen**

The IUVSTA-86/ASEVA-28 WORKSHOP: Nanoscale oxide systems in Physics and Chemistry took place from Sunday, July 1, 2018 to July 5, 2018 at the Hotel Reina Isabel, Avila. It was attended by 47 expert scientists from 13 countries of Europe and overseas, including China, Japan, Argentina and the USA. Nine plenary talks and 35 contributed talks have been delivered during the workshop period. Ample discussion time has been provided after each presentation and in between the sessions, which has been used by the participants for intensive scientific exchange of ideas.

The workshop was organized around 8 sessions with focus on: "Oxide-Metal Interactions", "Surface Reactions", "Ultrathin Oxide Films", "Engineered Oxide Nanostructures", "Theoretical Simulations", "Oxide Nanoparticles", "Ceria", and "Oxide Surface Structures". All the sessions, their presentations and the discussions were on actual "hot" problems of oxide nanostructure research and reflected the present state of the art. As particular highlight subjects, giving rise to intense and sometimes controversial discussions, the following topics may be singled out:

- Single atom catalysis: myth or reality? The prevailing opinion was that it is rather a myth, but that very small nanoparticles of oxides (e.g. ceria) are catalytically the most active. The relation to coordination chemistry could be more strongly emphasized.
- Theory: Is the so-called pairing energy between adsorbed reaction partners just another term for the well-known Lewis acid-base interaction? This was not completely clear, but it was recognized that this energy contribution might be important.
- Oxidation of noble metal particles during catalytic reaction: at the particles' surface or at the oxide-metal interface? Not completely clear, but the charge transfer between metal and oxide (e.g. cationic Pt species) was recognized to be important for certain oxidation reactions.
- Polarons in oxide nanoparticles – accuracy of DFT methods were seen as a limitation from the theory side. On the experimental side the issue is finding suitable supports that do not act as electron sinks.

Overall, the discussions were taken up quite enthusiastically by the participants and they were of high quality as expected from the scientific status of the participants. Many participants expressed the opinion that such a workshop on "work in progress" is highly beneficial to the field







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## International Conference on Nanoscience + Technology (ICN+T) July 22 to 27, 2018, Brno, Czech Republic

**Tomáš Šikola [sikola@fme.vutbr.cz]**

The Conference was organized by Tomáš Šikola from Brno University of Technology, Chair of the conference, and Antonín Fejfar of Institute of Physics of the Czech Academy of Sciences, member of IUVSTA Nanometer structures division (NSD). The Institutional Organizers were the Central European Institute of Technology (CEITEC) and the Institute of Physics of the Academy of Sciences of the Czech Republic/ Brno Exhibition Centre, with scientific endorsement of IUVSTA. The conference provided an international forum for discussion of the latest developments in nanoscale science and technology and relevant instrumentation and methodologies and covered a range of topics in nanoscale science and technology, addressing the interdisciplinary nature of this strategic field. The conference was very well organized with very good and excellent lectures, promoting scientific discussions among the participants in a very pleasant atmosphere and at a very convenient venue. Some figures: 5 plenary and 5 keynote speakers plus 35 invited speakers. With around 320 participants the conference had less attendees than previous ICNTs and certainly less attendance than the organizers were expecting for the first event of this kind in Eastern Europe. This reflects a common trend in international conferences in general and those in the nanosciences in particular and is certainly independent of the location. A guided visit to CEITEC was included in the program, giving the participants a view of the high level of nanostructure research at this novel research facility. The officers of NSD IUVSTA division (Ana G Silva, Christian Teichert, and Sidney Cohen) were actively involved: Ana represented the IUVSTA and NSD in the opening session and served as chair of plenary session, Christian and Sidney chaired poster judging, and all presented their work in the oral scientific sessions. Finally, the forum was exploited to convene meetings of both the NSD and the ICN+T steering committee.



Photo of the group





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## The 17<sup>th</sup> Joint Vacuum Conference (JVC-17)

**Karel Mašek, [karel.masek@mff.cuni.cz](mailto:karel.masek@mff.cuni.cz)**

The 17th Joint Vacuum Conference (JVC-17) has been held in NH Collection Hotel – Olomouc Congress Center in Olomouc in the Czech Republic between September 10th and 14th, 2018. JVC-17 is the meeting of the established series of Joint Vacuum Conferences, which are organized at two-year intervals by the Austrian, Croatian, Czech, Hungarian, Slovak and Slovenian national vacuum societies. The aim of the Joint Vacuum Conference is to bring together scientists from academia, university and industry and to create a stimulating atmosphere for exchanging knowledge and experiences and to establish new contacts and collaborations between the participants and research groups. In 2018, the conference was organized by the Czech Vacuum Society and endorsed by the International Union for Vacuum Science, Technique and Applications (IUVSTA).

Historical Olomouc city has been chosen by the organizers as one of the most important royal cities in the Czech Republic. With its convenient location, ancient university and spiritual, cultural and craft traditions it was for centuries a natural center of Moravia, which attracted artists, intellectuals and businessmen. The conference venue was at a convenient walking distance from the historical city center of Olomouc which attracted many participants for evening walking, tasting of Czech dishes and beer.

The scientific programme of the JVC-17 consisted of 4 plenary, 12 invited, 29 oral lectures and 38 posters and covered the following scientific topics: Applied Surface Science, Biointerfaces, Electronic Materials and Processing, Nanometer Structures, Plasma Science and Technique, Surface Engineering, Surface Science, Thin Films, Vacuum Science and Technology. The conference was attended by more than 110 registered participants. Oral contributions took place in two parallel sessions. Selected papers will be published in a Virtual Special Issue (VSI) of Vacuum journal (Elsevier).

An exhibition was opened during welcome drink. The companies presented the latest developments in the field of vacuum technique and its applications. The organizers would like to express many thanks to the sponsors and to the exhibitors for their support.

Social program which offered several alternative events (Bouzov Castle tour, Olopedal tour of the city, Sightseeing cruise and Guided tour in the City) followed by common conference dinner in the famous Archbishop Palace, contributed to friendly and warm atmosphere in Olomouc.

The organizer would like to take this opportunity to thank the plenary and invited speakers as well as to all participants for kindly agreeing to participate at this Conference. We would like to thank also to all members of International Program and Organizing Committees for their work.





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## The 10<sup>th</sup> Jubilee Conference of the Balkan Physical Union (BPU10), August 26-30, 2018, Inter Expo Center, Sofia, Bulgaria

**Ekaterina Batchvarova [Ekaterina.Batchvarova@meteo.bg]**

The 10<sup>th</sup> Jubilee Conference of the Balkan Physical Union (BPU10) was an IUVSTA sponsored event and organized by the Balkan Physical Union (BPU) and hosted by the Union of Physicists in Bulgaria (UPB). Members of BPU are the National Physical Societies of Albania, Bulgaria, Cyprus, FYR of Macedonia, Greece, Montenegro, Moldova, Romania, Serbia and Turkey.

The Conference was held under the auspices of the President of the Republic of Bulgaria Mr. Rumen Radev, who attended the conference at its closing and met with the international participants.

Co-Organizers of the BPU10 were: European Physical Society, University of Sofia "St. Kliment Ohridski", Bulgarian Academy of Sciences, Ministry of Education and Science, Bulgarian Nuclear Regulatory Agency and Union of Scientists in Bulgaria. The conference was chaired by Professor Alexander Petrov, President of the UPB and Professor Ekaterina Batchvarova was the chair of the local organization committee. The BPU Member Country coordinators were Temenuzhka Yovcheva (BG), Paraskevi Kleideri (GR), Demetrios Philippou (CY), Radu Constantinescu (RO), Goran Djordjevic (SR), Predrag Miranovic (ME), Gulfem Susoy (TR), Boce Mitrevski (FYR of MK), Antoneta Deda (AL), and Viorel Ciornea (MD).

The BPU Conference is an International General Physics Conference, open for participants from all over the world with English as official language. There were 388 participants to the Conference and 189 oral presentations and 236 posters. Five plenary lectures were presented which were of very high quality. There were plenty of discussion and interactions among the attendees. The conference papers will be published in American Institute of Physics Conference Proceedings in April 2019. The social program included a welcome reception, conference dinner, and an excursion to the National History Museum

BPU11 will be held in Serbia with Prof. Goran Djordjevic from Nis University as President.



The plenary session



President of the Republic of Bulgaria Rumen Radev with members of the organizing committees





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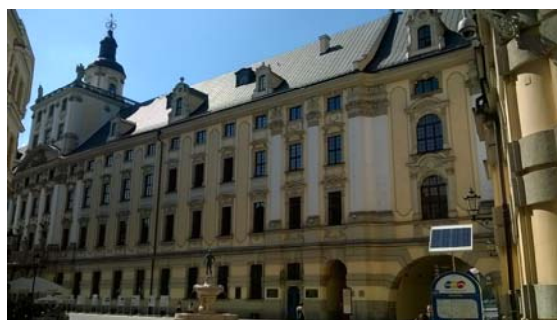
## 87<sup>th</sup> IUVSTA Workshop: Nanostructured surfaces, June 24 - 28, 2019, Trzebnica, Poland

<http://www.iwsp2019.ifd.uni.wroc.pl>

### Scope

The Institute of Experimental Physics of the University of Wrocław organizes the International Workshop on Surface Physics (IWSP-2019). The forthcoming IWSP-2019 will be a 87<sup>th</sup> IUVSTA workshop and a satellite conference to IVC-21. The leading theme of the workshop is "Nanostructured surfaces". The aim is 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 is intended to be a platform for scientists of different fields from academia and scientific laboratories.

The scientific program of IWSP-2019 will cover 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 will be also represented. Special sessions dedicated to these issues are planned.



### Invited speakers

**Grażyna Antczak**, University of Wrocław, Poland  
**Peter Broekmann**, Universität Bern, Switzerland,  
**Alessandro Fortunelli**, ICCOM-CNR U.O.S. di Pisa, Italy  
**Mieczysław Jałochowski**, UMCS Lublin, Poland  
**Takashi Kumagai**, FHI MPG Berlin, Germany  
**Nian Lin**, Hong Kong University of Science and Techn., China  
**Gareth Parkinson**, Technische Universität Wien, Austria  
**Talat Rahman**, University of Central Florida, USA  
**Martin Sterrer**, Karl-Franzens Universität Graz, Austria  
**Christian Tusche**, Forschungszentrum Jülich, Germany  
**Olaf Magnussen**, Christian-Albrechts-Universität zu Kiel, Germany  
**Moritz Sokolowski**, University of Bonn, Germany  
**Frances M. Ross** (2019 Theodore E. Madey Award), MIT, USA

### Important dates:

Full registration of participants and abstract submission: April 1, 2019

**Workshop: June 24 – 28, 2019**

### Organizers

**Marek Nowicki**  
University of Wrocław, Poland  
[nowicki@ifd.uni.wroc.pl](mailto:nowicki@ifd.uni.wroc.pl)  
**Ireneusz Morawski**  
University of Wrocław, Poland  
[imorawski@ifd.uni.wroc.pl](mailto:imorawski@ifd.uni.wroc.pl)





## 89<sup>th</sup> IUVSTA workshop

Biological and soft matter sample preparation  
for high resolution imaging by high vacuum techniques

19-24 May 2019 Zakopane, Poland



The workshop will bring together leading experts in the field of biological and soft matter studies to discuss sample preparation methods that preserve biological structure and molecular integrity for high-resolution imaging using high vacuum techniques.

Website: <http://www.npl.co.uk/89th-iuvsta-workshop/> Registration will open soon!

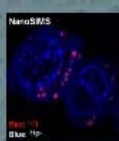
### TOPICS

#### Cryo-SIMS & SIMS Imaging



- Cryo-preservation
- Instrument advances
- Sample preparation

#### NanoSIMS



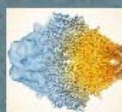
- Retention of diffusible analytes
- Correlative imaging

#### Atom Probe Tomography



- Sample stability
- Hetero-structures
- Reconstruction

#### Cryo-Spectroscopies



- Novel beamlines
- Molecular imaging

#### Electron Microscopy



- Resin-embedding and cryo-preservation
- FIB milling and cryo-ultramicrotomes
- Liquid cells for real time analysis

First Announcement







**Dear Colleague,**

You are invited to participate in the 89th IUVSTA workshop on **Biological and soft matter sample preparation for high resolution imaging by high vacuum techniques**, 19-24 May 2019, Zakopane, Poland.

The workshop will bring together leading scientists in electron microscopy, secondary ion mass spectrometry, atom probe tomography, cryo-spectroscopy and related technologies to address important challenges in biological and soft matter sample preparations for high-resolution imaging by high vacuum techniques. This is a forum where experts share their views and engage in in-depth discussions to identify and solve current challenges and issues. The number of delegates is limited and the venue has been selected to provide an ideal environment for discussion. The list of confirmed speakers include:

**Prof. Andrew Ewing**  
University of Gothenburg,  
Switzerland

**Prof. Hua Tian**  
Penn State University,  
USA

**Dr Katie Moore**  
University of Manchester,  
UK

**Prof. Mary L. Kraft**  
University of Illinois,  
USA

**Prof. Siegfried Reipert**  
University of Vienna,  
Austria

**Prof. Sarah Shahmoradian**  
Paul Scherrer Institute,  
Switzerland

**Prof. Peter Sjövall**  
Chalmers University of Technology & SP Technical Research Institute,  
Sweden

The [Hotel Belvedere](#) in Zakopane, Poland is easily accessible from Krakow Jan Pawel II, which is well served with flights to major European hubs. This first announcement is so that you can enter the venue in your diary. Details of the programme, travel, registration and abstract submission will soon be available on the website:

<http://www.npl.co.uk/89th-iuvsta-workshop/>

We do hope that you will be able to join us in Zakopane next year for this important workshop.

## Workshop Organisation







Union Internationale Pour La Science, La Technique et Les Applications du Vide  
International Union for Vacuum Science, Technique and Applications  
Internationale Union für Vakuum Forschung, Technik und Anwendung

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## In Memory of Peter Varga

Peter's scientific success was inseparable from his human qualities. Peter aimed to get a deep understanding of the world, hence his great passion for history especially that of the many countries of Asia he travelled through. His characteristic traits were his great kindness and intellectual honesty, coupled with a rather strict view of life in general and of himself. His great enjoyment that he derived from learning new things and putting the puzzles together allowed him to summarize subjects in precise formulations that could be understood by all.

Peter supervised numerous PhD students, many of whom went on to highly successful careers in physics and chemistry. Being formally retired, Peter continued to work in research over many years. He is co-author of more than 270 journal articles and book chapters with more than 8500 citations. Peter was also a talented athlete and a person particularly interested by the diversity of cultures. Serving as the chair of the Surface Science Division of the IUVSTA, in addition to developing outstanding and intense scientific programs, he was the perfect nexus between the west and the east surface science communities. Effectively, he was the enthusiastic front runner in organizing first-class workshops and scientific conferences, where the unique passport to get included was the excellence in science.



**1946 – 2018**

He was a wonderful mentor to countless students, young scientists, and colleagues. Peter was a generous scientist who conceived many of his work in a spirit not only of discovery but also of service to the community and particularly to the IUVSTA, where he has expressed his greatest qualities in a strong and precious heritage for the Union.

Peter's brilliance, his boundless energy, and his enthusiasm for science will be greatly missed.

**Maria C. Asensio**  
Chair of the IUVSTA Surface Science Division  
SOLEIL French Synchrotron Facility  
Université Paris –Saclay  
FRANCE

**Lars Montelius**  
IUVSTA President  
Director General INL  
[www.inl.int](http://www.inl.int)  
Portugal





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## Member Society Symposia and Conferences

### French Vacuum Society



**CALL FOR PAPERS**  
UNTIL 31 JANUARY 2019

**PLATHINIUM** (*Plasma Thin film International Union Meeting*) which will take place from **23 to 27 September in Antibes, French Riviera**, aims to be an important biennial meeting covering low-temperature plasma physics, plasma processing and plasma applications. Plasmas from low to atmospheric pressure and plasmas in magnetic fields are included. Consequently, the range of applications is equally wide and covers traditional fields such as thin films and coatings in microelectronics, automotive, aeronautics industries, and expands to emerging fields such as plasmas, thin films and nanostructures used in environmental, energy, biomedical and agricultural applications.

**André Anders**  
Chair of the conference

<https://www.plathinium.com/>

### American Vacuum Society



<http://www2.avs.org/conferences/icmctf/>

<http://www2.avs.org/conferences/icmctf/2018/>



**AVS 66<sup>TH</sup> INTERNATIONAL  
SYMPOSIUM & EXHIBITION**

Greater Columbus Convention Center, Columbus, Ohio  
**OCTOBER 20-25, 2019**

<https://www.avs.org/Symposium>