



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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IUVSTA Communications Committee Co-Chair



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Report on Executive Council Meeting 142

The 142nd Executive Council Meeting of IUVSTA (ECM 142) was held on Saturday, June 22nd, 2024 as a hybrid meeting with the on-site part located in the Crowne Plaza Hotel in Harrogate UK. Before ECM 142, the standing committees of the Union and STD met on Friday afternoon and Saturday morning to advance the business of IUVSTA and to discuss proposals for scientific events. Preceding ECM 142, the combined conferences of ECOSS 37 and EVC 17 were held in the Harrogate convention centre. Around 500 delegates shared the newest developments within the fields of surface and vacuum science. The excellent organization by the Institute of Physics enabled a lively and high-quality conference and provided a great framework for ECM 142.

In the afternoon of June 22nd, ECM 142 was officially started by the President, François Reniers. The Secretary General, Christoph Eisenmenger-Sittner in collaboration with the Recording Secretary, Ana G. Silva checked the attendance to determine the quorum. The quorum was 85%, so ECM 142 was found to be safely quorate, with approximately 20 delegates being on-site, and the remaining delegates using the possibility to join online.

After checking the attendance, the President issued a brief opening statement. He had to convey the sad news, that Frank Richter and John Colligon, who were deeply involved in the Union in the fields of Thin Films, Surface Engineering, and Vacuum Science, recently passed away. Concerning the organization of the Union, Frank Richter was long time chair of the Awards and Scholarships Committee, and John Colligon was the founding father of the EVC conference series. Both will be greatly missed and kept in high esteem by the members of IUVSTA. After communicating the obituaries, the President asked for a minute of silent remembrance. After the moment of silence, the President stated that the statutes of the Union would have to be modified to comply to new laws issued by the Belgian government, and also to include virtual components, especially on-line votes, in a legally correct manner. The statutes will be worded correctly in close collaboration with a Belgian lawyer and will then be communicated to the members for input. Finally, the new statutes must be legally implemented by a notary physically present in Brussels. To do this, a hybrid Extraordinary General Meeting (EGM) will be held in late 2024 or early 2025, with the President, the Secretary General and the Recording Secretary physically present at the notary's office in Brussels and the representatives of the Member Societies present online. The EGM has to be called by the Executive Council and a vote on this procedure was proposed to ECM 142 by the President. The delegates unanimously approved the procedure described by the President. François Reniers finished his opening statement and handed the word to the treasurer to present the financial report.

The Treasurer, Arnaud Delcorte, briefly presented the current status of the finances of the Union and of the payments of the subscription fees. All finances were found to be in good order, all questions and comments from the representatives of the member societies were clarified.

The next item on the agenda was the vote on the scientific events presented in the session of the Scientific and Technical Directorate. Proposals for Schools, Technical Training Courses or for Short Courses had not been received. Two Workshop proposals were presented to the ECM for a vote by the Scientific Secretary, Anton



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Stampfl. They were voted openly by the Executive Council due to a very clear recommendation given by the votes taken at the STD:

- the Workshop entitled "Characterization of gas transport through materials: applications to Vacuum Science and Technology", to be held in Genova Italy, October 2025, approved as the 105th IUVSTA Workshop.
- the Workshop entitled " Laser patterning and surface modification for biological, optical, and microelectronics applications", to be held in Golden, Colorado, USA, February 2025, approved as the 106th IUVSTA Workshop.

After the approval of these events, the President gave information on the "Earth Humanity Coalition" which constitutes the framework for the International Decade of Sciences for Sustainable Development 2024-2033 (IDSSD). The President stressed that the membership of the Union in this body, which is associated with a cost of 1000 EUR per year, provides the opportunity to introduce the viewpoints of natural scientists and engineers into this association. After explaining the key features of the "Earth Humanity Coalition" he asked for a vote by the Executive Council, whether the Union should join or not. A secret electronic vote was conducted by the Recording Secretary which resulted in the approval by ECM 142 the joining of the "Earth Humanity Coalition".

To have all items of the agenda requiring a vote in close temporal proximity, the bid for ECM 143 which was received by the Secretary General, was treated next. At this ECM the nominations for the President Elect of the Union will be discussed, and the first round of bids for IVC 25, due in 2031, will be presented to the CPC. So, ECM 143 is a very important meeting, as the Secretary General, Christoph Eisenmenger-Sittner stressed. One bid was submitted to the Executive Council by the Netherlands Vacuum Society (NEVAC) to have the face-to-face part of the meeting in Delft, Netherlands, from February 7 to 8, 2025. The bid was discussed by the delegates and finally put to a vote by the President. In an open vote it was approved with a great majority.

ECM 142 continued with brief committee reports, with a special emphasis on CPC in which the current status of the preparations for IVC 23 was presented. A preliminary programme and abstract submission template are now available at <https://ivc23.org/>, and also the conference topics and sub-topics have been defined. The scientific programme committees are in the process of formation. After the committees reports in the Item "Any other Business", the Councilor of Japan, Yasunori Tanimoto, asked for the endorsement by the Union of the "10th International Symposium on Surface Science (ISSS-10) Conference" to be held from 20-24 October 2024 in Fukuoka Japan. This endorsement was unanimously granted with great enthusiasm by the Executive Council.

After concluding Any Other Business, the President expressed his gratitude to all participants of ECM 142 and then checked the motion to adjourn. The meeting ended at 17:50 BST, well ahead of schedule, which could be attributed to the excellent preparations undertaken by all active participants to ECM 142.

Christoph Eisenmenger-Sittner

June 2024



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SYDNEY

23rd International Vacuum
Congress (IVC23)
15-19 September 2025
Sydney Australia

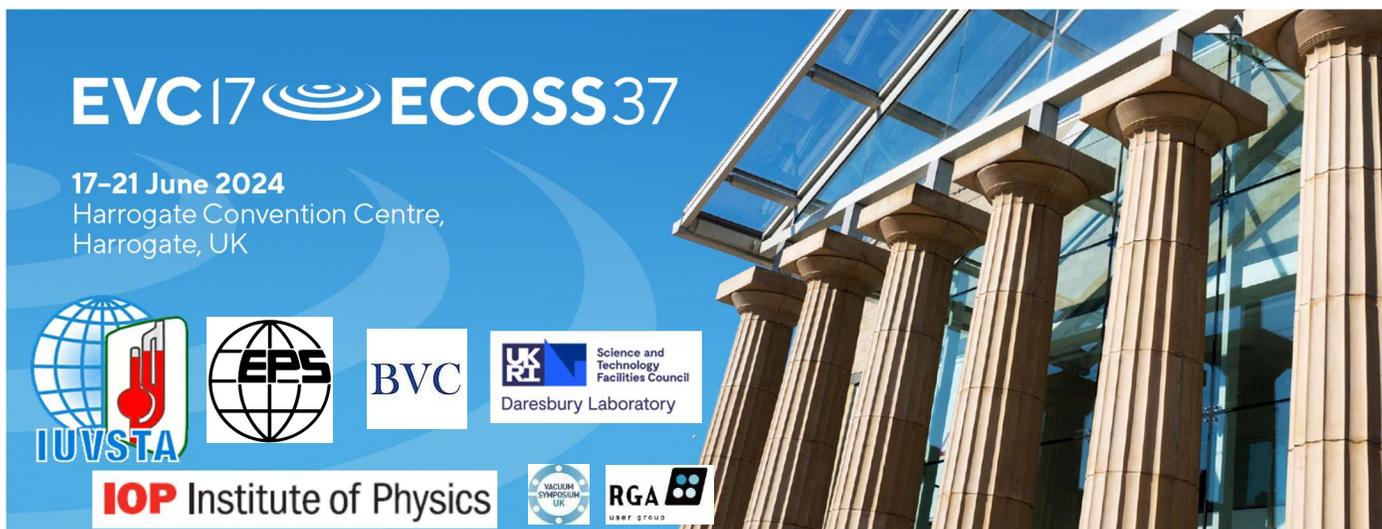


Website: <https://ivc23.org/>
ABSTRACTS NOW OPEN



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Report on EVC 17 – ECOSS 37



The **EVC-ECOSS joint conference** recently took place in Harrogate on 15-21 June 2024, bringing together: the 17th European Vacuum Conference (EVC-17) and the 37th European Conference On Surface Science (ECOSS-37) coupled with UK national events: the 13th Vacuum Symposium UK (VS-13) and the 14th RGA User meeting. The conference also included 8 short courses, 13 in-depth training sessions and 4-days Vacuum Exhibition with 44 exhibitors.

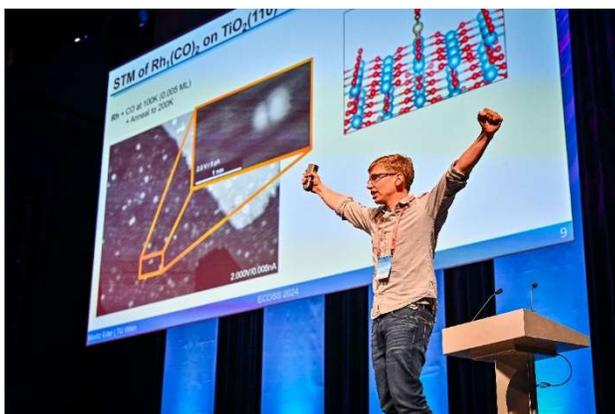
The European Vacuum Conference (EVC) is held every three years (every two years before 2018) in Europe to discuss the latest developments in vacuum science, technology and applications. The conference series was initiated by Prof. John S. Colligon in 1988 and the first conference (EVC-1) was held at Salford University (near Manchester, UK). This year was only the second time the event has been held in the UK since the inaugural event 36 years ago. It was with great sadness that we had to report the recent death of the Prof. Colligon at the inaugural session of the conference.



The European Conference on Surface Science (ECOSS) is an annual event that is held and co-ordinated by a joint standing committee of the IUVSTA and EPS Condensed Matter Division. After approval for the UK to host EVC-17, ECOSS decided to join to make a bigger event that covers all scientific topics of IUVSTA.



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The conference was well supported by all IUVSTA divisions, with divisional members present on the International Advisory Committee (IAC) and International Programme Committee (IPC). The IPC suggested Plenary and Invited speakers and tried to maintain a reasonable regional and gender balance. Thus, of the 6 Plenary and 44 Invited Speakers (50 in total), 39 came from Europe, 6 from the Americas, and 4 from the rest of the world. The gender balance was 35 male and 15 female and reflects the ratio of male and female scientists in this field.

The 5-day conference programme included: Plenary Session in the mornings followed by 4 to 6 Parallel sessions and Mini-Symposia; and 3 Poster sessions through the working week. 56 parallel sessions included 44 Invited, 18 Featured and 200 Contributed talks. The 3 Poster sessions saw 91 posters presented on a wide range of topics. Early career researchers (ECR) were offered the opportunity to attend 4 ECR Sessions with presentations on topics as diverse as winning research funding in Europe and public engagement.

The 447 conference participants could be broken down to 276 Full Fee, 91 Students, 69 Exhibitors, 11 attending only a Mini Symposium, and 30 Short Course attendees. 40 countries were represented by those attending with 42% from UK, 42% from Europe and 16% from Rest of World. The top three countries represented were UK, Germany, and Japan. In terms of gender distribution, 64% of attendees were male, 21% female, and 15% self-identified as other.

We were extremely fortunate to receive substantial funding for awards and travel support for the conference from several sources including:

- The IUVSTA-Elsevier Awards
 - 8 × €500 for PhD or Master students
- The UKRI/STFC Awards
 - 10 × £500 for ECR
- The EPS EuroPhysics Conference Grants
 - 1 × Invited (Plenary) Speaker Grant
 - 2 × €350 Travel Grants



and for Prizes at the conference for oral presentations:

- Best Oral Presentation (sponsored by IoP TGSG)



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- Bayao Liu, *“Experimental Characterization of Defect-Induced Phonon Lifetime Shortening”*
- Best ECR Oral Presentations (sponsored by SPECS)
 - 1st prize: Bayao Liu, *“Experimental Characterization of Defect-Induced Phonon Lifetime Shortening”*
 - 2nd prize: Paul Philip Schmidt, University of Potsdam, *“Diffusion Studies of Pb on Si(111)-(7x7) using SFM and KPFM”*
 - 3rd prize: Ines Bertaso, University Of Nottingham, *“The Adsorption and Reactivity of N-heterocyclic Carbenes on Ultrathin Films of Reactive Metals on Au(111)”*



and poster presentations:

- Overall ECR Poster Presentation (sponsored by IoP)
 - Matthew Naylor, Northumbria University, *“Regulating the Properties of Mo Thin Films to form an Efficient Back Contact for CZTSSe Solar Cells”*
- ECR Poster Presentations (sponsored by IoP)
 - Hugh Churn, STFC, *“Lifetime Studies of Caesium Telluride Photocathodes Grown at Daresbury Laboratory”*
 - Kerry Hazeldine, Interdisciplinary Nanoscience Center, Aarhus University, *“In-situ Near-Ambient Pressure Scanning Tunnelling Microscopy Study of MoS₂ for Hydrodeoxygenation Applications”*
 - Rezwan Ahmed, High Energy Accelerator Research Organization (KEK), *“Report on New Findings in Low-Energy Positron Diffraction (LEPD) Experiments for Surface Structure Analysis”*
 - Christopher Benjamin, STFC, *“Novel photocathode production method for CsTe Photocathodes via Cs Ion Beam Sputtering”*
 - Oliver Poynton, STFC, *“Development of SLA 3D Printed Volumes for Leak Testing of LHC Hi-Lumi Cryomodules at STFC”*
- EPS Student Poster Prize
 - Niko Kruse Carl Von Ossietzky, University Oldenburg, *“Synthesis of TiS₂ Nanoclusters on Au(111) Surface as a Model Platform for CO₂ Conversion”*

The short course and training programme proved very successful thanks to those who volunteered their time and effort to prepare and deliver courses but also thanks to IUVSTA for the financial grant that kept the costs for delegates low.



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A total of 6 courses were organised over the weekend before the conference, 2 full day courses, 3 half day courses and 1 two-day course. We were pleased to facilitate training for 36 different people and the feedback we received was very positive.

During the conference, the Vacuum Symposium UK training team arranged for 8 short introductory training courses to be delivered in a training theatre located in the conference exhibition hall. In addition, a hands-on demonstration was organised with VACOM to highlight the advances in Time Of Flight Mass Spectrometry (TOF). These sessions proved very popular with 105 training places paid for by day visitors to the conference along with close to 250 conference delegates who received the training without charge. All 8 training sessions were attended by between 35 and 55 people – a tremendous success!

The Vacuum Symposium UK awarded the 2024 Harry Leck Memorial Medal to Professor Dave Armour, University of Salford, after careful consideration of a number of nominations. The Medal is awarded for distinguished contributions to British scientific research and/or related scientific/technical communities, in the field of Vacuum Science and Technology.

Professor Dave Armour, an esteemed figure in the fields of vacuum science and technology, plasma physics, and ion beam technology, has made significant contributions to British scientific research and the related scientific and technical communities. His legacy is profound, marked by his innovative research, extensive collaboration, and significant contributions to both academia and industry. His work has not only advanced scientific understanding but also led to practical applications that continue to benefit various high-tech industries.



We are confident that the combined EVC-ECOSS was a success and a fitting tribute to Prof John Colligon.

Dr. Oleg Malyshev, Chair of EVC-17/ECOSS-37

Prof. Martin McCoustra, Co-chair of EVC-17/ECOSS-37

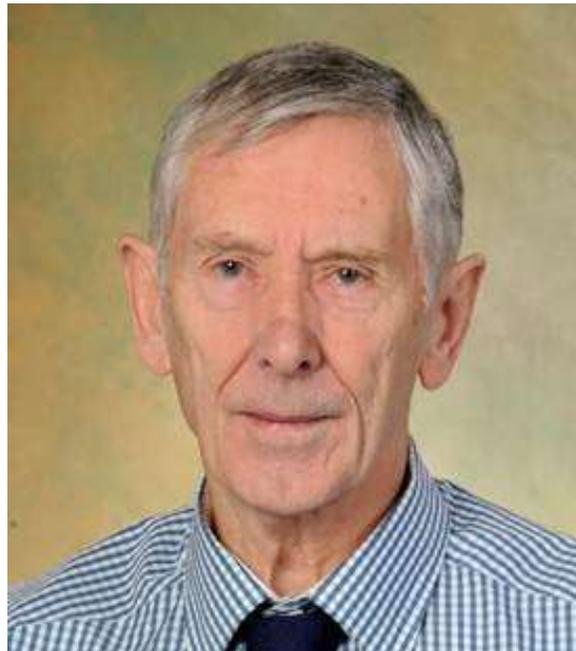
Joe Herbert, Co-chair for Short courses and training at EVC-17/ECOSS-37



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Prof. John S. Colligon, IUVSTA obituary

Born 3rd February 1937, died 19th May 2024,
Secretary General of IUVSTA in 1989-1998,
Active member of IUVSTA, BVC and IoP Committees



It is with great sadness that we report the death of Prof. John Colligon, a great scientist in thin film deposition and characterization.

John Colligon obtained a First-Class Honours BEng degree from the University of Liverpool, Electronic and Electrical Engineering Department in 1958 and went on to complete a vacuum-based PhD in the same department in 1962 under the supervision of Professor Harry Leck. John has since had a research career, always in the field of Vacuum Science and its applications. He says, with his British sense of humour, he can honestly claim that he has never had any pressure in performing his work!

John was a great scientist, he worked in a few universities in Manchester area (Salford University, Manchester Metropolitan University and Huddersfield University). He is internationally known for his research on the use of ion/solid interactions for materials modification and surface analyses. As a co-



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author of the first book on ion/solid interactions for materials modification and surface analyses, Prof. Colligon established himself as one of the founders of the field of ion-surface interactions. He has influenced the work of generations of scientists. John has made sustained contributions in the general areas of sputter deposition and ion-assisted film growth. In particular, he developed the technique of dynamic recoil mixing for low temperature film growth with enhanced adhesion and film properties. The basic idea behind this deposition method, of concurrent film growth from the vapor phase and ion irradiation with energies high-enough to cause collisional cascade mixing, proved to be very fruitful and is widely used today. His achievements were acknowledged by the American Vacuum Society in 1997 by awarding him honorary fellowship.

He was also an accomplished teacher, much admired and valued by generations of PhD students and young scientists. He was always ready to share his knowledge and skills.

Many of us will remember John as a very proactive member of vacuum community:

He was the founder of EVC series of conferences. He proposed this idea to 51st Executive Council of IUVSTA and was one of the organizers of EVC-1 in Salford University on 11-15 April 1988. The EVC series provided a useful and well-supported forum for scientists and engineers based in Europe to exchange the latest discovery, data and news in vacuum science and technology as well in other vacuum based science and applications. Sadly, he could not attend the EVC-17/ECOSS-37 joint conference on 17-22 June 2024 in Harrogate (UK), when EVC came back to the UK, where he was a honorary member of the Local Organising Committee.

John Colligon was a key member of the International Union for Vacuum Science and Technique and Applications (IUVSTA). Not only was he an active member of the British Vacuum Council (BVC) and in the committees of the Institute of Physics (IoP), but John served as secretary general of the Union from 1989-1998. For all of us active in the Union, it is clear that the job of secretary general is probably the most important of the Union, as he is in charge of running all the administrative aspects of the Union, organising Executive Council Meetings and General Assemblies, contacting the national member societies, managing and enforcing the statutes, solving any kind of problems. It is really the cornerstone of the Union. John managed this task smoothly and efficiently during his 3 triennia of operation and, for this, the Union will be forever grateful.

During this time he had an agreement with Elsevier management that some of the funds from the journal will be used to support student attendance at conferences organised by IUVSTA. This Elsevier-IUVSTA arrangement still continues to this day.

Anyone who publishes scientific papers will remember John as Editor of Vacuum and acknowledges



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how much has been done and achieved by John for publishing high quality papers in VACUUM. John Colligon was a member of the Editorial Board of the scientific journal VACUUM from 1978 and became Editor-in-Chief in 1981. His professional (and human) reputation in the communities of surface science, coatings and vacuum science and technology has attracted many scientists and engineers to publish in VACUUM. For many years the Special Issues (SI) were edited by John Colligon. He has established good relationships with many overseas Guest Editors, allowing reliable editorial process and SI publishing for both the congress/conference proceeding (EVC, JVC, IVC, ISNE, INSE, ISFM, IAPS, VEIT) and the selected topic Special Issues (gas dynamics, applied plasma, QMS, etc.). Approximately one third of all accepted papers were published in the Special Issues, i.e. has been carefully read, commented and corrected by Prof. John Colligon, and he has spent a considerable time to deal with this workload. Editing the Special Issues won't be as easy for the Guest Editors without the leadership provided by Prof. Colligon, and certainly will not be as rewarding without Prof. Colligon's mentorship to the Guest Editors.

John was the nicest person you were ever likely to meet, he was a good colleague and a good friend. His kindness and generosity were legendary. May people call him "the Gentleman".

The passing of Professor John Colligon is a big loss for the international vacuum community. His leadership, mentoring abilities and encouragement, his willingness to help, his humor and friendship will be greatly missed.

François Reniers, Oleg Malyshev, Christoph Eisenmenger-Sittner, Ron Reid, Ivan Petrov



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PVS Report IUVSTA-TTC29
Technical Training Course on
Vacuum Applications in Applied Surface Science
October 24-26, 2023. COMSTECH Auditorium, Islamabad, Pakistan.

By: Dr. Javid Ahsan Bhatti, President, PVS

Pakistan Vacuum Society (PVS) in collaboration with the International Union of Vacuum Science, Technology and Applications (IUVSTA), Pakistan Science Foundation (PSF), Committee of Scientific and Technological Cooperation (COMSTECH) and National Institute of Vacuum Science and Technology (NINVAST), organized a three-day international technical training course titled “Vacuum Applications in Applied Surface Science (ITTC VAASS-2023)” The course was held at COMSTECH, Islamabad from 24-26 October 2023. The objectives of this training were (i) To Provide advanced knowledge about Applied Surface Science and its applications in the modern and applied fields of research and production (ii) To learn the basics of surface science techniques like AES, XPS, ISS, SIMS etc. and their applications (iii) Cope with the latest trends and future role of Vacuum Surface Science in the research and industrial applications (iv) Realize the barriers for adaptation/promotion of this technology and to resolve the related practical problems (v) Enhance collaborative research and development activities among various industries, research organizations and universities within the country and outside Pakistan.



Inaugural ceremony



Technical session in progress

Chief Guest, Prof. Dr. Ahmed Elmouna, Director General, National Agency for Scientific Research and Innovation (NASRI), Mauritania, inaugurated the opening ceremony and said that this course is a demonstration of the dedication and commitment of the COMSTECH and PVS that we witness a wonderful gathering here to explore the fascinating world of vacuum science and technology and its



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applications in applied surface science. Prof. Elmouna said that vacuum science has played a paramount role in advancing the understanding of the physical and chemical properties of surfaces and enabled us to explore the properties of materials at the atomic and molecular levels, leading to groundbreaking discoveries and innovations that have transformed the world. Prof. Dr. M. Iqbal Choudhary, Coordinator General COMSTECH, said that vacuum science and technology have played a central role in the development of science, technology, and industry throughout the world. The applications of vacuum technology, in the modern industrial and R&D world are countless. Prof. Choudhary said that the current & future cutting-edge technologies and associated advancement would not be possible without the use of vacuum technology. He said that the world is driven by the intellectual potential of nations and the difference between have and have not is the knowledge and its applications. Prof. Choudhary said that we are focusing on taking the vacuum technology to the different OIC member states. He said COMSTECH is working intensively to enhance S&T cooperation among the OIC nations. Prof. Dr. John T. Grant, head, IUVSTA Applied Surface Science Division, and the Principal trainer of the course said that the goal of this training is to teach the fundamentals of vacuum technology and its use because it is very important to understand the fundamentals of technology to develop new products, find solutions and analyze materials. Mr. Imtiaz Rastgar, Chairman of the Board of Rastgar Group of Industries, said that there is a dire need to bridge the knowledge gap. He emphasized the need to gain the ability to make business out of the knowledge. He said the role of vacuum technology is pivotal in research and development. Mr. Rastgar also informed that some Pakistani companies are providing equipment and technical support to the CERN. Dr. Javaid A. Bhatti, President, PVS, talked about the PVS's programs, activities and the progress, and the importance of the training course, whereas Mr. Tariq Sattar, Coordinator, PVS welcomed the participants of the training course. Participants from China, Guyana, Ethiopia, Iran, Cameroon, Indonesia, Sudan, Kazakhstan, Northern Cyprus, Malaysia, Mauritania, and Pakistan attended the inaugural session. Two hundred participants from Pakistan and OIC member states attended the event in person and online. The language of the course was English. The course participants included those from research and technical organizations, industries, academic institutions, and business communities.

The main resource person Prof. Dr. John T. Grant from the University of Dayton, USA, conducted the training on the following topics: X-ray Photoelectron Spectroscopy (XPS) & Ion Scattering Spectroscopy (ISS), Secondary Ion Mass Spectrometry (SIMS) & Sputtered Neutral Mass Spectrometry (SNMS), Advanced Functional Engineering Nano Composites Coatings Produced by Lateral Arc Vacuum Technology: Opportunities & Challenges, Vacuum Coatings, and In-situ Surface Assessments, Rutherford Backscattering Spectrometry (RBS) & Total Reflection X-ray Fluorescence (TXRF) and Scanning Probe Microscopy (SPM).

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The training course also included a poster session. Twelve (12) posters were presented by the students of IST, HITEC and NINVAST. A committee, headed by John Grant evaluated the posters and announced 1st, 2nd, and 3rd prizes for best posters.

In the closing ceremony, the Course Coordinator shared the course outcome with the participants. Patron in Chief PVS Engr. Tahir Ikram, Chief Guest Engr. Mohammad Naeem, Former Chairman Pakistan Atomic Energy Commission, and Guest of Honor Dr. Shahid Baig, Chairman, Pakistan Science Foundation, expressed their views about the application of vacuum science and technology, the activities of PVS, and the training course. Poster prizes, souvenirs, and course certificates were awarded.

A cultural program and a main PVS dinner were a part of the program. The following organizations sponsored the event: IUVSTA, PSF Islamabad, IVC Islamabad, EPRF Karachi, QA Sialkot, IE Gujranwala, and NINVAST, etc.



Group photo of the course participants



List of upcoming events with URL links

- 104th IUVSTA Workshop “Current Trends in Low-Dimensional Materials: From Molecular Systems to Heterostructured Nanomaterials”, Sept. 16-20, 2024, San Luis, Argentina, <https://104ws-iuvsta.fisica.org.ar/>
- 12th Vacuum and Surface Sciences Conference of Asia and Australia (VASSCAA-12) Oct, 14-17, 2024, Taipei, Taiwan, <https://www.taiwanvacuum.org/vasscaa-12/>
- 100th IUVSTA workshop “How sustainable are thin films and thin film processing? Pathways towards responsible surface engineering” Oct. 27-31, 2024 Ludwigsburg, Germany, <https://www.iuvsta100.rwth-aachen.de>
- 102nd IUVSTA workshop on ultra clean vacuum, Feb. 3-6, 2025, Delft, the Netherlands, www.tno.to/ucv
- 24th International Conference on Secondary Ion Mass Spectrometry (SIMS-24), Sept. 8-13, 2024, La Rochelle, France, <https://www.sims-24.com/>
- 19th Joint Vacuum Conference (JVC19) and the 30th Croatian Slovenian International Scientific Meeting on Vacuum Science and Technique Sept.29-Oct.4, 2024, Podstrana, Croatia, <https://jvc19.org/>
- 10th International Symposium on Surface Science (ISSS-10), conjunction with the JVSS Annual Meeting 2024 (JVSS2024), Oct. 20-24, 2024, Kitakyushu, Japan <https://www.jvss.jp/conference/iss10/>
- The AVS Pacific Rim Symposium on Surfaces, Coatings and Interfaces (PacSurf 2024), Dec. 8-12, 2024, Big Island of Hawaii, USA. Steering Committee with representatives from Australia, Canada, China, Japan, Mexico, New Zealand, the Philippines, South Korea, Taiwan, and the United States. <https://pacsurf2024.avs.org/>