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Ivan Petrov, petrov@illinois.edu
IUVSTA Communications Committee Chair
Report on ECM 137, a Teleconference Meeting

Christoph Eisenmenger-Sittner, christoph.eisenmenger@ifp.tuwien.ac.at

ECM 137 was held on Friday, September 2nd, 2022 as a virtual Executive Council Meeting. ECM 137 was the last meeting of the triennium, which usually directly precedes the International Vacuum Congress which was due from September 11th – 16th in Sapporo, Japan. However, due to the travel restrictions for entering Japan, and because not all delegates would join IVC 22, the meeting was shifted to one week before the Congress to maximize the number of participants. The meetings associated to ECM 137, committee meetings and the STD meeting were held on September 1st and September 2nd, directly before ECM 137. The highlight of these meetings was the CPC meeting on September 1st, in which the upgraded bids for IVC 24 were discussed first in an open meeting of CPC, including observers, and then in a closed meeting of CPC members. Two bids, one from Poland and one from Portugal, were discussed. From this closed meeting, a recommendation for the bid of Portugal to ECM resulted. It was also stated by CPC that basically both bids were fully eligible and a final decision should be taken by the Executive Council. Finally, ECM 137 was held on Friday, September 2nd.

After the President, Anouk Galtayries, opened ECM 137, the Secretary General C. Eisenmenger-Sittner in collaboration with the Recording Secretary, Ana G. Silva checked the attendance. ECM 137 was found to be safely quorate with 78% participation, with 44 persons attending in total. As the quorum was established, the President opened ECM 137.

The President, Anouk Galtayries, welcomed the IUVSTA Officers, Councillors and Alternate Councillors and observers, attending and participating in ECM 137. After these welcome words the President expressed her happiness for the many activities and initiatives which were started during the triennium. She acknowledged the activities of the Secretary General, Christoph Eisenmenger-Sittner, the Scientific and Technical Directorate, Jay Hendricks and Katsuyuki Fukutani, the Recording Secretary Ana G. Silva and the Committee Chairs Alberto Tagliaferro, Anton Stampfl, François Reniers, Ivan Petrov, Pedro Nascente and Martin Wüest for their effort and for their great work during the triennium 2019-2022. After these general acknowledgements, the IUVSTA President, Anouk Galtayries, shared the screen, and highlighted the following topics:

- the creation of new IUVSTA webinars in association with IOP
- the new IUVSTA EBARA young researcher award
- the IUVSTA prizes for senior researchers
- the IUVSTA appearance on social media: @iuvsta on Twitter, on LinkedIn, and the IUVSTA WhatsApp list
- the membership of IUVSTA as a founding member of IYBSSD22
- the efforts of the Union towards a 10th scientific division, starting by a working group on sustainable development under the leadership of the winner of the IUVSTA Prize for Science 2022, Christian Mitterer.

With special emphasis on the last two items of the above list the President concluded her report with the statement "Let’s make IUVSTA sustainable!".

After finishing the President’s report, selected committees presented their reports. Arnaud Delcorte presented a preview on the framework budget for the triennium 2022-2025. Anton Stampfl, reported on the triennium and lead the presentation and discussion of the updated bids for IVC24, which were presented by Monika Kwoka
from Katowice, Poland and Carlos Tavares from Braga, Portugal. Ivan Petrov, Chair of the Communications Committee shared the screen, briefly explained the structure of the IUVSTA webpage, and highlighted the immense work done improving communications, through webpage, newsletters, and bulletin.

The report of the Congress Planning Committee given by Anton Stampfl was a major item of the agenda. First, he asked Monika Kwoka to shortly present the bid to organize IVC-24 in Katowice, Poland and then Carlos Tavares to present the bid to organize IVC-24 in Braga, Portugal. The presentations were followed by a session of Q&A. After that the winning proposal was chosen among the Councillors present in the room, by a secret vote, prepared by recording secretary, Ana G Silva, using the Balotilo software. The on-line voting process was explained to all members. The result of the voting was shared among all members attending ECM 137: 31 registered voters, 17 votes for the Portuguese proposal, 12 votes for the Poland proposal and 1 vote abstention. Therefore, IVC 24 in 2028 will be held in Braga, Portugal. Monika Kwoka congratulated Carlos Tavares and acknowledged all the support and recommendations of the IUVSTA CPC members.

In addition, Sander Otte, chair of the steering committee of ICN+T, informed about the decision to discontinue organizing ICN+T within IVC the congress. The NSD division was asked about the possibility and interest of NSD to take over of the ICN+T in IVC. The chair of NSD, Ana G Silva, had promoted a meeting with former NSD officers, in which it was concluded that “having ICN+T in parallel, organized and under the responsibility of the same scientific committee covering a similar field of NSD scientific division would lead to an overlapping of topics and sessions at the IVC congress, to an unnecessary dispersion and other difficulties.”
Finally, Anton Stampfl, reported on past, current and future IUVSTA conferences and congresses, particularly on IVC 22, highlighting the good numbers of approximately 900 registrants, approximately 60 exhibitors and the solid full program, including 7 short courses, a IUVSTA seminar in the honour of Joe Greene and a session devoted to "Vision 2030".

Moving on in the agenda, the next item was the report of STD. The Scientific Director, Jay Hendricks, welcomed the attendants. After that he presented the scientific director’s forward view and an overview of the activities during the triennium 2019/2022. Reports on workshops and schools held this year and proposals for future workshops, Schools and Technical Training Courses were presented and discussed followed by the voting on the new proposals. All proposals were recommended by STD for funding and also received approval from the Executive Council. These events were (i) the 97th IUVSTA Workshop entitled "Plasma-assisted conversion of gases for a sustainable future " to be held in Slovenia in 2023, (ii) the 98th IUVSTA Workshop entitled "Functional nanostructured surface " to be held in Belgium in 2023, (iii) the 19th IUVSTA School entitled "Surface Science Toolbox 2023 " to be held in Poland in 2023, and (iv) the 28th IUVSTA Technical Training Course entitled "Plasma and Society II" to be held 2023 in the Philippines. In conclusion of the STD meeting, the Scientific Director, Jay Hendricks, acknowledged all Division Chairs, the Scientific Secretary Katsuyuki Fukutani and the chair of the Education Committee, Alberto Tagliaferro, for their work and efforts.

After the STD report, the Secretary General, Christoph Eisenmenger-Sittner, shared the screen and presented an outlook on GM 21 and ECM 128 which would be held in conjunction with IVC 22 as hybrid events with the on-site part of the meeting located in Sapporo, Japan. Finally, the future IUVSTA President for the triennium 2022-2025, François Reniers, announced the possibility of organizing ECM 139 in Belgium by the end of January 2023.

In conclusion of ECM 137, the President Anouk Galtayries was grateful and very happy with the IUVSTA achievements during this triennium and the success of IUVSTA during the pandemic period. She expressed her gratitude to all attendants in the ECM 137 and closed the Meeting.
Report on General Meeting 21
Sapporo Convention Centre in Sapporo, Japan

Christoph Eisenmenger-Sittner, christoph.eisenmenger@ifp.tuwien.ac.at

The 21st Ordinary General Meeting (GM 21) and the Extraordinary General Meeting of 2022 took place on Wednesday, September 14th as a hybrid meeting. The on-site part of the meeting was held at the Sapporo Convention Centre, room 221 in Sapporo, Japan from 20:00-23:30. For the online part of the meeting, delegates were invited to join via a ZOOM teleconference meeting. Within the time slot given before the following meetings were held: GM 21, followed by the Extraordinary General Meeting of 2022 (EGM 2022) and finally ECM 138, in which the new Executive Council for the Triennium 2022 – 2025 was constituted. Before the official start of the meeting, the Japan Society of Vacuum and Surface Science was briefly introduced by Katsuyuki Fukutani upon invitation of the President, Anouk Galtayries. Then the meeting was opened and after a brief welcome to the delegates by the President, the Secretary General, C. Eisenmenger-Sittner in collaboration with the Recording Secretary, Ana G. Silva checked the attendance to determine the Quorum. This was confirmed to be 85%, so both meetings, GM 21 and the Extraordinary General Meeting of 2022 were quorate. After a brief opening statement of the President, Anouk Galtayries, in which she welcomed all IUVSTA delegates, officers, chairs, and members and gave special thanks to Katsuyuki Fukutani and Yasunori Tanimoto for the organization of the excellent and successful IVC 22 in Sapporo. She announced that for the last Triennium, fortunately, no remembrances had to be mentioned.

In the following, the Secretary General, C. Eisenmenger-Sittner announced that no new applications for membership to then Union were received. He mentioned that it was to be hoped that the interest in joining IUVSTA would increase again once the aftermath of the pandemic situation would fade out and international exchange would increase again. In addition, the Secretary General also announced that no changes to the Statutes and By laws, which are the legally binding documents of the Union, were made during the last Triennium. However, he stated, that the procedures manual would need significant updates to reflect the new ways of holding ECMs, and meetings in general, which emerged from purely online and hybrid meeting formats.
These were developed in a relatively concise manner in the last triennium and have to be incorporated into the procedures’ manual in a brief but complete manner.

Moving on in the Agenda, the minutes of GM 20 were approved as a true record and the Treasurer, Arnaud Delcorte asked the General meeting for the approval of the Accounts for the Financial Year 2021 and of the Budget for Financial Year 2022. Both items were approved unanimously in an open vote by the delegates.

The next item of the Agenda was a special highlight in the history of the Union, namely the conferral of the title "Honorary President" to Prof. Peter B. Barna from Hungary. In the list of Honorary Presidents, Peter Barna follows Prof. Dr. E. Thomas from Belgium, who was awarded this title in 1989 (see https://iuvsta.org/general-structure/#list-of-presidents). After it was communicated that it was approved to award this title to Prof. Barna at ECM 134, the Secretary General, Christoph Eisenmenger-Sittner, asked the General Meeting to confer the title "Honorary President" to Prof. P. B. Barna by a Motion of the Executive Council. This was ratified and validated unanimously by the General Assembly. Christoph Eisenmenger-Sittner kindly asked the Hungarian delegates attending GM 21 to transmit the decision to Prof. P. B. Barna, with a recognition of Prof. Barna's outstanding work for IUVSTA and of his contributions to science.

After this the Presidency was transferred from Anouk Galtayries to Francois Reniers. Anouk Galtayries will act as Past President. As the new President Elect, Jay Hendricks was proposed by the former Executive Council to the General Meeting. The new officers proposed by Francois Reniers are: Scientific Director: Katsuyuki Fukutani; Scientific Secretary: Anton Stampfl Secretary General: Christoph Eisenmenger-Sittner and Treasurer: Arnaud Delcorte. These persons were ratified in their respective positions unanimously by the General Meeting. The position of the Recording Secretary is kept by Ana Gomes Silva. The President, François Reniers, and the Past President, Anouk Galtayries gave special thanks to Lars Montelius, Past President in the triennium 2019-2022, for advice and inspiration along these years. He was honored by the General Meeting with standing ovations of the present participants and acclamations of the delegates who attended virtually.

With the new Officers ratified, the meeting proceeded with the presentation of the framework budget for the Triennium 2022 – 2025 by the Treasurer, Arnaud Delcorte. The presentation to the delegates was very clear and
the presented Budget was approved unanimously by an open vote. Also, within the next item of the Agenda, it was communicated that the subscription rates to the Union remained unchanged. This was also unanimously approved by the General Assembly. Finally, however, the treasurer remarked that, if no funds had to be extracted from the General Fund, as it was done in the presented framework budget, an increase of subscription rates would be inevitable in the future, an item which has to be carefully prepared in the coming years.

After the ratification of the framework budget the new Councillors and Alternates were unanimously ratified by the General Meeting. Finally, to conclude GM 21 all persons who finished their activities in the Union were acknowledged by the Past President, Galtayries.

Within the item Any Other Business, the President elect, Jay Hendricks, gave special thanks to the Past President, Anouk Galtayries, for the fantastic work during the triennium 2019-2022. Then GM 21 was adjourned by the President, Francois Reniers, and the Extraordinary General Meeting of 2022 was seamlessly started. As no delegation left the room, also this Extraordinary General Meeting was safely quorate and could instantly be constituted.

First, the meeting was devoted to the Report of the Past President to the General Meeting and to the Reports of the previous Executive Council (Secretary General, Committees, Scientific and Technical Director, Divisions, as well as the Treasurer and the Finance Committee). The Past President briefly summarized the work done within the Union during the pandemic period. This included the compact fully virtual and hybrid Executive Council Meetings, virtual conferences and the implementation and development of the IUVSTA webinar series under the guidance of the Chair of the Education Committee, Alberto Tagliaferro. She also mentioned that the Union acted as a founding member of the IYBSSD2022 as well as the inception of a new working group on sustainability, which will, if successful be transformed into a full working Division at the end of the Triennium. After the Reports of the Secretary General, the STD and of the President Elect, the current President, Francois Reniers, presented his inaugural statement, in which focused on triggering excitement, scientific curiosity and enthusiasm for working within IUVSTA. This inaugural statement can also be found at https://iuvsta.org/message-from-the-president/.

All reports and statements are available in the Book of Reports at https://iuvsta.org/iuvsta2/assets/docs/GM21/GM21_Book_of_Reports_v2_2.pdf.

Finally, before the closing of EGM 2022, the chair of the Awards and Scholarships Committee announced the winner IUVSTA Welch Award 2022: Rui Shu. After completing his Ph.D. in Materials Science at Linköping University, Sweden, he plans to spend half a year at the Department of Physics and the Texas Center for Superconductivity at the University of Houston to study inorganic-organic hybrid micro-thermoelectric devices for harvesting low-grade heat.

After this message, the president closed the meetings associated to GM 21 and announced the start of ECM 138, the first Executive Council Meeting of the new triennium.
Report on ECM 138
Sapporo Convention Centre in Sapporo, Japan
Christoph Eisenmenger-Sittner, christoph.eisenmenger@ifp.tuwien.ac.at

The 138th Executive Council Meeting of IUVSTA (ECM 138) took place on Wednesday, September 14th as a hybrid meeting, with the on-site part of the meeting located at the Sapporo Convention Centre, room 221 in Sapporo, Japan. The meeting happened directly after the 21st General Meeting and the Extraordinary General Meeting of the Union, from 22:45-23:15 Japan time. For the online part of the meeting, delegates were invited to join via a ZOOM teleconference meeting. The President, Francois Reniers, started the meeting, and after that the Secretary General, C. Eisenmenger-Sittner in collaboration with the Recording Secretary, Ana G. Silva checked the attendance to determine the quorum. This was confirmed to be 87%, so ECM 138 was found to be safely quorate.

After a brief opening statement of the President, Francois Reniers, the Secretary General reported on the actions of the last triennium in due brevity. Then the Treasurer, Arnaud Delcorte, referred to the finance and budget reports presented during GM 21 and the 2022 Extraordinary General Meeting. He highlighted that one needs to think about solutions for the future to consider expenses for e.g. hybrid meetings, marketing, and for adjusting in respect to inflation. He also announced that he was still looking for persons interested in giving advice in regard of investing funds in these challenging times.

After discussing the future of the finances of the Union, the new Scientific Director, Katsuyuki Fukutani, shared the screen and present his vision for the triennium 2022-2025. He centred his presentation on the development of Focus Topics, on establishing the Union as an international communication “hub” to connect science and industry, on the contributions of IUVSTA to IYBSSD2022 and to find applications of science for the benefit of society. As a first step, he emphasized the importance to promote the discussion within each division.
After the Scientific Director concluded his presentation, the President announced the Chairs of the nine IUVSTA Committees to serve during the Triennium 2022 – 2025. These are:

- Awards and Scholarship: Timo Gans
- Congress Planning: Carlos Tavares
- Education: Alberto Tagliaferro
- Finance: Arnaud Delcorte
- Integrating New Societies: Pedro Nascente
- Industry Meets Science: Monika Kwoka
- Long Range Planning: Jay Hendricks
- Communications: Jennifer McLeod & Ivan Petrov
- Statutes: Christoph Eisenmenger-Sittner

Additional co-chairs for some committee might still be added in the near future.

Regarding the membership to the Committees, the Secretary General, Christoph Eisenmenger-Sittner announced that he would send out an email in which interested persons could sign up for committee membership.

Moving on in the Agenda, the Secretary General announced that, upon invitation of the President, the next Executive Council Meeting, ECM 139 would take place at the end of January, 2023, in Brussels Belgium. Bids for ECMs following ECM 139 should be issued there.

Finally, within the item Any Other Business, the Past President of the triennium 2029 – 2022, Lars Montelius, remarked that IUVSTA has developed tremendously and that he saw a lot of further possibilities for the future. He thanked François Reniers to embrace the governance of IUVSTA and congratulated Anouk Galtayries for her fantastic work during the triennium 2019-2022. Also, Alberto Tagliaferro, encouraged members to volunteer to sign up for the Education Committee. After these general statements and remarks, François Reniers concluded the meeting by welcoming all members on board and by conveying thank to all who contribute to the success of IUVSTA. Then he checked the motion to adjourn and ECM 138 was closed in the late evening for all those present on-site in Sapporo.
The 22nd International Vacuum Congress was held at Sapporo Convention Center, Sapporo, Japan from September 11th to 16th, 2022, combined with the 18th International Conference on Solid Surfaces (ICSS-18), the International Conference on Nanoscience+Technology (ICN+T 2022), and the 11th Vacuum and Surface Science Conference of Asia and Australia (VASSCAA-11). The event was co-hosted by Japan Society of Vacuum and Surface Science (JVSS) and Science Council of Japan with support of Japan Vacuum Industry Association (JVIA), which also incorporated the International Symposium on Sputtering Plasma Processes (ISSP), the International Colloquium on Scanning Probe Microscopy (ICSPM) and the Annual Meeting of JVSS.

Considering the COVID-19 pandemic situation, all sessions of IVC-22 were operated in the hybrid mode, where both on-site and online presentations including discussion were performed. An online poster session was held as along with the on-site poster sessions. Recordings of the oral presentations were available in a streaming service until the end of October. This hybrid operation was highly appreciated by the participants.

Attendance
The total number of participants was 956 and the number of presentations was 815 from 38 countries/regions. The details are shown below.
Program
Lectures by nine plenary speakers including IUVSTA prize winners, 27 keynote speakers and 55 invited speakers including the IUVSTA Welch awardee and IUVSTA Ebara awardee were presented. In addition to the IUVSTA division-based sessions, an IUVSTA highlight seminar in honor of Joe Greene was organized, along with seven focus topic session: Engineering Biology and Medicine, Data-driven Materials Science and Process Informatics, Advanced Light Spectroscopy, Nano-optics, Low-dimensional Quantum Materials, Non-Evaporable Getter Coating, Science and Technologies for SDGs. At the poster session hall, a technical exhibition consisting of 65 exhibitors took place, offering a platform for contact opportunities with excellent companies providing new products and services. In addition to the technical exhibition, sponsor prizes were awarded to young researchers. Besides the IVC-22 program, two public lectures were organized also in the hybrid mode at Hokkaido University. Close to 100 people participated in the event, which included an active and lively discussion with questions from the audience. Furthermore, IUVSTA-sponsored seven short courses were held by leading experts with 66 attendees.
IUVSTA Awards at IVC-22
Dr. Martin Wüest, Chair of the IUVSTA Awards and Scholarship Committee

A number of awards were presented during the 22nd International Vacuum Congress.

Every three years during the International Vacuum Congress the two highest prizes of the Union are awarded. The IUVSTA Award for Science and the IUVSTA Prize for Technology were presented in an awards ceremony on Thursday, September 15, 2022. The Prizes consist of a cash award, a struck medal and a certificate.

The IUVSTA Prize for Science was awarded to Prof. Christian Mitterer “for his seminal contributions to the materials science of protective coatings and thin films for flexible electronics and hydrogen storage”. Prof. Mitterer is Professor and Head of the Department of Materials Science at Montanuniversität Leoben in Austria. After the laudatio, Martin Wüest, Chair of the IUVSTA Awards and Scholarship Committee, handed the award certificate and the Prize medal to Prof. Christian Mitterer. Prof. Mitterer then gave a Plenary Talk on “Physical Vapor Deposition of Thin Films: From Trial & Error via Knowledge-based Development to Sustainable Processes and Materials”.

The IUVSTA Prize for Technology was given to Professor Ian Gilmore, Senior NPL Fellow and NPL Head of Science, National Physical Laboratory, Teddington, United Kingdom, for pioneering advances in vacuum instrumentation enabling innovative multidisciplinary research and development. After the award presentation he gave his Plenary Talk on “OrbiSIMS: Molecular identification AND localization at the micro to nanoscale”.

Professor Christian Mitterer (right) with Martin Wüest
Professor Ian Gilmore receives his prize from Martin Wüest
The second IUVSTA Ebara Award was presented in a special award ceremony on Wednesday, September 14 to Professor Deep Jariwala, Professor of Electrical and Systems Engineering at University of Pennsylvania, Philadelphia, for “Novel Thin-Film Materials and Heterostructures for Energy-Efficient Electronics and Photonics”. Prof. Jariwala gave then a presentation on Two-Dimensional Materials and Heterostructures for Electronics and Photonics.

At the 16th European Vacuum Conference in Marseille last November, we started with recognizing Welch Awardees at an IUVSTA linked conference. In Sapporo, we were happy to recognize Pierre Vinchon, the 2020 IUVSTA Welch Awardee. He is now at the Center for Atomic and Molecular Technologies at Osaka University, Japan. A short ceremony was held before his invited talk entitled “Multiscale evolution of monolayer graphene following low-energy ion beam irradiations”.

The IUVSTA Elsevier Awards were given at the Closing ceremony. Due to the hybrid mode of the conference the IUVSTA Elsevier Awards were best presentation awards instead of travel awards. The eight recipients were:

1. Kseniia Leonova, ChIPS lab., University of Mons, Belgium,
2. Linghui Li, Graduate School of Pure and Applied Sciences, Univer. of Tsukuba, Japan
3. Bang Lu, Hokkaido University, Japan
4. Hiroaki Tanaka, Institute for Solid State Physics, The University of Tokyo, Japan
5. Yudai Sato, The Institute for Solid State Physics, The University of Tokyo, Japan
6. Atsuya Kuwada, Graduate School of Engineering, Fukuoka University, Japan
7. Hikari Yoshioka, University of Tsukuba, Japan
8. Lena Puntscher, Austria Institute of Applied Physics, TU Wien, Vienna, Austria
IUVSTA Announcements
Anton Stampfl, IUVSTA Scientific Secretary, aps@ansto.gov.au

Upcoming IUVSTA Conferences:
• ICFT 2023, Burgos, Spain September 26-29, 2023 https://ictf2023.com/
• VASSCAA-12 Taipei, Taiwan October 14-17, 2024
• IVC-23, 2025, Sydney Australia, September 15-19, 2025

ECM-139 and Proposals for Workshops, Schools, Technical Training Courses, Short Courses

• ECM-139 to be held as a hybrid meeting on will be held on Friday, January 27th and Saturday, January 28th, 2023 with the on-site part in Brussels, Belgium.
• Deadline to submit proposals: Friday January 20, 2023. Please submit all proposals to anton.stampfl@ansto.gov.au and cc to fukutani@iis.u-tokyo.ac.jp and relevant Division Chair. 
  Please send all inquiries to Anton Stampfl.
• Further details to come.