

# Scientific and Technical Directorate(STD)

Jay Hendricks, Scientific Director

Katsuyuki Fukutani, Scientific Secretary



ECM-137

Virtual Meeting

September 2<sup>nd</sup> 2022



# Scientific Director's Forward View

**The Scientific and Technical Directorate (STD) coordinates the Scientific and Technical activities of the Nine IUVSTA Divisions**

- **Communication:** “Serve as an international communication ‘hub’ that connects vacuum science and technology scientists around the world”.
- **Education:** Work with Division Chairs to develop *Workshops, Schools, Short Courses, and Technical Training*
- **IVC Scientific:** Work with IUVSTA Division Chairs to Develop IVC-22 Program and abstract calls through the international program committee.
- **Society Impact:** Find Applications where our science has positive impact for society.
  - Support for science in less developed countries .
- **Develop Focus Topics:**
  - Technologies for Sustainability (clean water, air,
  - Quantum Science (AVS Quantum Science journal, Quantum Based Units, Quantum Computing/deep learning).
  - Photonics and Nano photonics (multiple technologies, including bio applications)
  - Role of Sensors and Sensor Science (AI, Self-driving cars)
  - Next Gen. Energy (Fusion, Solar, new materials and process enabling technologies, batteries)
  - **FIGURE OUT HOW TO FUNCTION IN A PANDEMIC!!!**



# 2019-2022 IUVSTA Scientific and Technical Division Officers

## IUVSTA Division

## Chair

## Vice Chair

## Secretary

**ASSD** - Applied Surface Science

**BID** - Biointerfaces Division

**EMPD** - Electronics Materials & Proc.

**NSD** - Nanometer Structures

**PSTD** - Plasma Science & Tech.

**SED** - Surface Engineering

**SSD** - Surface Science

**TFD** - Thin Film

**VSTD** - Vac. Science & Tech.

**EC**- Education Committee

**Leszek Markowski**

**Dmitri Petrovykh**

**Ivana Capan**

**Ana Gomes Silva**

**Satoshi Hamaguchi**

**Ivan G. Petrov**

**María Carmen ASENSIO**

**Mile Ivanda**

**Marcelo J. Ferreira**

**Alberto Tagliaferro**

**John T. Grant**

**Miguel Manso**

**Monika Kwoka**

**Shuji Hasegawa**

**Miran Mozetič**

**Peter Schaaf**

**Mario Rocca**

**Papken Hovsepian**

**Martin Wüest**

**Ana Silva**

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**Carlos R. Grandini**

**Reinhard Schwarz**

**Carla Bittencourt**

**Deborah O'Connell**

**Monika Jenko**

**Fumio Komori**

**Diederik Depla**

**Joe Herbert**

**Sylve Bourgeois**



The triennium started off with the Scientific Director working with the Education Committee to develop a table that clarified the differences between Workshops (WS), Schools (SCH), Technical Training Courses (TTC) and Short Courses (SC). A table was developed and is shown here as Figure 1. As was voted at GM20, the 2016-2019 triennium budget was increased for STD, so more activities can be supported, and additionally, the funding maximum was increased from 6,000 Euro to 9,000 Euro for Workshops and Schools. At ECM 132 the PSD was officially changed to PSTD “Plasma Science and Technology Division”. And then the Pandemic hit, this impacted ECM 132 with the first ever all virtual ECM. This did not slow IUVSTA down, there were 10 proposals submitted at the ECM (5 workshops, 1 school, 3 technical training courses and 1 short course). There was much discussion of the pros and cons for virtual events. It was encouraged that new proposals be put forward for virtual events. ECM133 saw the first ever all virtual events being proposed. The 96<sup>th</sup> IUVSTA workshop on “HiPIMS Today-Recent Development of High-Power Impulse Magnetron Sputter” was the first such IUVSTA workshop. This was followed by the 24<sup>th</sup> IUVSTA Virtual Technical Training Course, which was approved, and was successfully deployed by the relatively new IUVSTA member, the vacuum society of the Philippines (VSP). ECM-134, also a virtual event, saw the first virtual school “IUVSTA Virtual School on Physics at Nanoscale” and it was approved. ECM 135 was the first hybrid, taking place in-person and as a virtual event. Presentations were given on successful past virtual events. ECM 136 was back to a virtual only event, yet still successful with 2 short courses, and 3 technical training courses approved.



	WS Workshops	SCH Schools	TCC Technical Training Course	SC Short Course (may adapted to webinar)
<b>Submission:</b>	TO: Scientific Secretary CC: SD + organizers	TO: Scientific Secretary CC: SD + organizers	TO: Scientific Secretary CC: ECC/ECVC/ECS/SD + organizers	TO: Scientific Secretary CC: ECC/ECVC/ECS/SD + organizers
<b>Summary/ Purpose:</b>	To <b>advance</b> scientific knowledge in a field; rather than be educational of existing knowledge	To <b>educate</b> on existing knowledge	To <b>educate at the beginner level</b> , generally not same topic in sequential years	To <b>educate on existing knowledge</b> “state of the art “in a specific field
<b>Organized by/Underwriter</b>	Organized IUVESTA Division(s)/National Vacuum Society or university	Organized IUVESTA Division(s)/National Vacuum Society or university	Organized IUVESTA Division(s)/National Vacuum Society or university	Organized IUVESTA Division(s)/National Vacuum Society or university
<b>Format:</b>	Format should be like that of a “ <b>Gordon Conference</b> ” with no publication of proceedings.	Format is a <b>school</b> with Intense instruction on a specific topic with learning/educational materials provided.	Format Example: <b>Practical</b> vacuum science for the regional technician /engineer	<b>Held in conjunction with existing scientific meeting.</b> Example AVS Short Courses
<b>Location:</b>	Remote location (not large city) in a hotel, hostel, university campus, or small town.	Typically, University campus	Regional	Regional to Main scientific meeting
<b>Size/Duration</b>	40-50 delegates 4-6 days	40-80 students 1 to 2 weeks	Any 1-3 days	any 1-2 days
<b>Participation:</b>	Organizers invite 10-20 talks of <b>International</b> experts	<b>International</b> teaching experts in the field	<b>Regional</b> experts and students	<b>Regional</b> experts and students
<b>Program:</b>	Dominated by single session oral presentations by invited speakers. Lots of unstructured discussion space in program and time for questions (opposite of a conference style with little time for questions).	Intense instruction/school on a specific topic with learning/ educational materials provided often in the form of textbook	Dominated by regional experts in the field and often taught in the local language.	1-2 days held in conjunction with a main scientific meeting.
<b>Funding:</b>	<b>6,000-9,000 Euro</b>	<b>6,000-9,000 Euro</b>	<b>2,500 Euro</b> maximum	<b>2,000 Euro</b> maximum
<b>Language:</b>	Typically, English (French/German permitted)	Typically, English (French/German permitted)	Local/regional language is encouraged	English (French/German permitted), maybe regional if main conference is regional language (unusual).
<b>Approval Route</b>	STD→ECM	STD→ECM	EC→STD→ECM	EC→STD→ECM

The following list contains the places of the **IUVSTA workshops, schools, technical training courses and short courses approved for funding in the triennium 2019 - 2022.** 5 Workshops funded

**ECM-137-10-A-02**

**ECM-137-10-A-02**

(A) Workshops:

92nd IUVSTA Workshop

“Workshop on Advanced Spectroscopy and Transport for 2D Materials at Surfaces”

Location: Okinawa, Japan

Date: 18-21 September, 2022

Web: <https://hasegawa.issp.u-tokyo.ac.jp/workshop>

93rd IUVSTA Workshop

“Advances in the characterization of surface engineering structures, coatings, and thin films”

Location: Castle Seggau, Austria

Date: October 15-19, 2023

94th IUVSTA Workshop

“Reliable sensing and control of reactive plasmas”

Location: Cerklje na Gorenjskem, Slovenia

Date: 29th May to 2nd June, 2022

Web: <https://www.plasmadis.com/wp/94th-iuvsta-workshop/>

95th IUVSTA Workshop

“Plasmonic Thin Films: Theory, Synthesis and Applications”

Location: Guimarães, Portugal

Date: 20-23 June, 2022

Web: <https://www.lab4nano.com/home/index.php/95th-iuvsta-workshop>

96th IUVSTA Workshop

“HiPIMS Today-Recent Development of High-Power- Impulse Magnetron Sputtering”

Location: Sweden (on-line)

Date: 20-22 January, 2021



(A) School : One School Funded

## **ECM-137-10-A-02**

“Physics at Nanoscale”

Location: Skalský Dvůr, Czech Republic (Hybrid)

Date: May 31-June 4, 2021

Web: <https://www.iybssd2022.org/en/physics-at-nanoscale/>

**ECM-137-10-A-02**

(A) Technical Training Courses (6 technical training courses funded)

TTC 21 “Vacuum technology, principles and applications”

Location: Štrbské Pleso, Hotel Trigan

Date: 13-16 October 2020

Web: <http://svs.stuba.sk/svt22/ttc.html>

TTC 22 “IUVSTA TTC on Vacuum Technology Applications”

Location: Islamabad Hotel, Islamabad, Pakistan

Date: April 14-16, 2020

TTC 23 “Introduction to Vacuum Science, Technology, and Applications: from Nano science to outer space”

Location: Universidad Nacional de San Martin, Argentina

Date: cancelled

TTC 24 “Plasma and Society”

Location: Quezon City, Philippines (online)

Date: 15-16 April 2021

TTC 25 "Vacuum, Plasma, Surfaces, and Thin Films"

Location: Sorocaba, SP, Brazil

Date: 08-9 August 2022

TTC 26 "Fundamentals of Vacuum Technique and Technologies"

Location: Ljubljana, Slovenia

Date: 25,26 May 2022

TTC 27 "Science and Technology of Vacuum"

Location: Spain

Date: Spring. 2023



(A) Short Courses 4 short courses

IUVSTA Short Course “Low Energy and PhotoEmission Electron Microscopy”

Location: Spain

Date: 26 September 2022

IUVSTA Short Course “Gas flows under vacuum conditions: from theory to applications “

Location: Marseille, France (Hybrid)

Date: 22-25 November 2021 (included in EVC 16)

IUVSTA Short Course “8 courses associated with IVC-22”

Location: Sapporo Convention Center, Hokkaido, Japan

Date: 10, 11, 16, Sep. 2022

Web: <https://ivc22.org/index.html>

IUVSTA Short Course “Secondary Ion Mass Spectrometry Short Course”

Location: Hyatt Regency, Minneapolis MN, USA

Date: 18-23, Sep. 2022

In all, 17 events were approved from ECM 132-136 for a total of €55,730

5 workshops funded for a total of € 30,200

1 School € 4,000

7 technical training Courses funded for a total of € 14,530 euro)

4 short courses totaling € 7,000

Overall, IUVSTA managed and survived the global pandemic that started in the fall of 2019.



## 2. Division Reports (20 min)

Reports... Katsuyuki to project

ECM-137-10-A-02

ECM-137-10-A-02

Division/ Reports		Chair	Presenting	Vice Chair	Secretary
ASSD	(2-3 min)	Leszek Markowski	Leszek	John T. Grant	--
BI	(2-3 min)	Dmitri Petrovykh	Dmitri	Miguel Manso	Carlos R. Grandini
EMPD	(2-3 min)	Ivana Capan	Ivana	Monika Kwoka	Reinhard Schwarz
NSD	(2-3 min)	Ana Gomes Silva	Ana	Shuji Hasegawa	Carla Bittencourt
PSTD	(2-3 min)	Satoshi Hamaguchi	Satoshi	Miran Mozetič	Deborah O'Connell
SED	(2-3 min)	Ivan G. Petrov	Ivan	Peter Schaaf	Monika Jenko
SSD	(2-3 min)	María Carmen ASENSIO	María	Mario Rocca	Fumio Komori
TFD	(2-3 min)	Mile Ivanda	Diederik for Mile	Papken Hovsepian	Diederik Depla
VSTD	(2-3 min)	Marcelo J. Ferreira	Marcelo	Martin Wüest	Joe Herbert
		Dr. Jay H. Hendricks, Scientific Director IUVESTA			



### 3. Reports SC/TTCs (5 min each 15 min total)

Past event reports being presented-Katsuyuki to project the sent files

ECM-137-10-A-02

ECM-137-10-A-02

Report filename	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#1 Report TTC 25	Sorocaba, SP, Brazil	08-12, Aug. 2022	Brazilian Vacuum Society	(EC)	Pedro Nascente	Pedro Nascente	“Vacuum, Plasma, Surfaces, and Thin Films”	2,000
#2 Report TTC 26	Ljubljana, Slovenia	25, 26, May. 2022	Slovenian Vacuum Society	(EC)	Miran Mozetič	Miran	Fundamentals of Vacuum Technique and Technologies	2,000
#3 Report WS 94	Cerklje na Gorenjskem Slovenia	Held 29 <sup>th</sup> May to 2 <sup>nd</sup> June 2022 (in person_	Slovenian Vacuum Society	PSTD	Miran Mozetič	Miran	“Reliable sensing and control of reactive plasmas”	9,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

## 4. Status of existing WS; Scientific Director (2 min)

ECM-137-10-A-02

ECM-137-10-A-02

title	Place/ Country	Status/Date	Organizer (underwriter)	IUVSTA Division	Primary Contact	Title	Requested Funding (€)
WS 90	Spain	From 28 Nov. to 2 Dec. 2022		SSD, NSD	<a href="mailto:Juan.F.Sanchez@uv.es">Juan.F.Sanchez@uv.es</a>	"Tuning properties of advanced energy materials using modern theoretical and experimental methods"	6000
WS 92	Okinawa Japan	Satellite of IVC-22 19-22 September 2022	Japan Society of Vacuum and Surface Science	NSD, SSD	<a href="mailto:shuji@surface.phys.s.u-tokyo.ac.jp">shuji@surface.phys.s.u-tokyo.ac.jp</a>	"Workshop on Advanced Spectroscopy and Transport for 2D Materials at Surfaces"	6000
WS 93	Castle Seggau, Austria	15-19 October 2023	Austrian Vac. Soc.	SE NSD, TFD, ASSD	<a href="mailto:petrov@illinois.edu">petrov@illinois.edu</a>	"Advances in the characterization of surface engineering structures, coatings, and thin films"	6000

Update: WS 92: "The workshop will be held in a hybrid form as the satellite meeting of IVC-22 for four days from Sep. 18. The number of participants will be 60~70, including 40 in-person participants from France, Germany, USA, Korea, Taiwan, and Japan."

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

#### 4. Continued...Status of existing Proposals TTC/SC, Scientific Director (3min)

ECM-137-10-A-02

ECM-137-10-A-02

Title	Place/ Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Title	(€)
TTC 21	Štrbské Pleso, Hotel Trigan	<i>Spring 2023 as in person meeting</i>	Slovak Vacuum Society	(EC)	Andy Vincze	“Vacuum technology, principles and applications”	2,500
TTC 27	Spring 2023	Spanish Vacuum Society	(EC)		Miguel Manso	Science and Technology of Vacuum	1,100
SC	Córdoba, Spain	In person Sep. 26, 2022 in-person <a href="https://leempeem12.secv.es/">https://leempeem12.secv.es/</a>	Vacuum Society- Spain	(EC)	miguel.manso @uam.es	“Low Energy and PhotoEmission Electron Microscopy”	1,000
SC	Sapporo Convention Center, Hokkaido, Japan	10, 11, 16, Sep. 2022	Japan Society of Vacuum and Surface Science	(EC)	Yasunori Tanimoto	8 Courses	2,000
SC	Hyatt Regency, Minneapolis MN, USA	18-23, Sep. 2022	AVS	(EC)	John Grant	SIMS (Secondary Ion Mass Spectrometry) Short Course	2,250

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

Dr. Jay H. Hendricks, Scientific Director IUVSTA



## 5. WS/SC/TTCs (5 min each 20 min total)

proposals presented HERE... Katsuyuki to project

ECM-137-10-A-02

ECM-137-10-A-02

PDF file name	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#1-WS-1	Slovenia	3-7 December 2023	<i>Slovenian Vacuum Society</i>	PSTD	Miran Mozetič	Miran Mozetič	IUVSTA Workshop on Plasma-assisted conversion of gases for a sustainable future	9,000
#2-WS-2	Belgium	11-14 July 2023	<i>University of Mons</i>	NSD	Carla Bittencourt	Carla Bittencourt	"Functional nanostructured surface"	6,000
#3-SCH-1	Poland	1 week in Mid 2023	<i>Adam Mickiewicz University</i>	ASSD	Mikołaj Lewandowski	Mikołaj Lewandowski	"Surface Science Toolbox 2023"	9,000
#4-TTC-1	Philippines	26-27 January 2023	<i>Vacuum Society of the Philippines</i>	PSTD	Kathrina Lois M. Taaca	Kathrina Lois M. Taaca	"Plasma and Society II"	2,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

## Workshop proposal

- **Title:** IUVSTA Workshop on Plasma-assisted conversion of gases for a sustainable future
- **Venue:** Cerklje, Slovenia
- **Dates:** 3<sup>rd</sup> – 7<sup>th</sup> December 2023
- **Requested IUVSTA grant:** 9000 €

**Motivation:** Gas conversion is a hot topic (sustainability, climate, etc.)

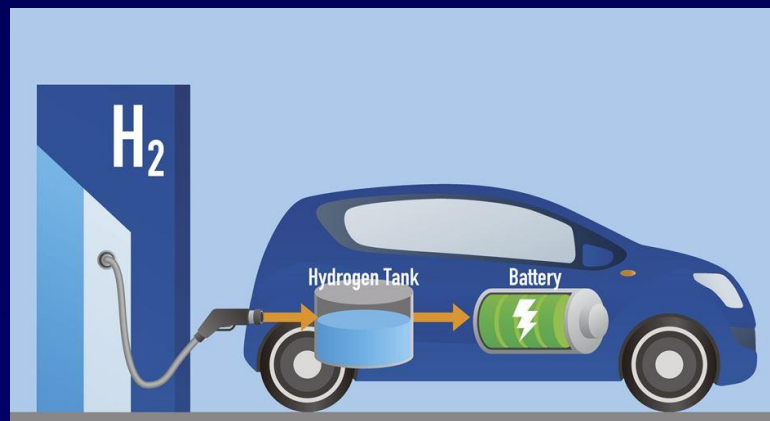
**Plasma conversion:** methane → butane + hydrogen



**Methane is burnt at sources (too low critical temperature 190K)**



**Liquid butane is easy for transport**



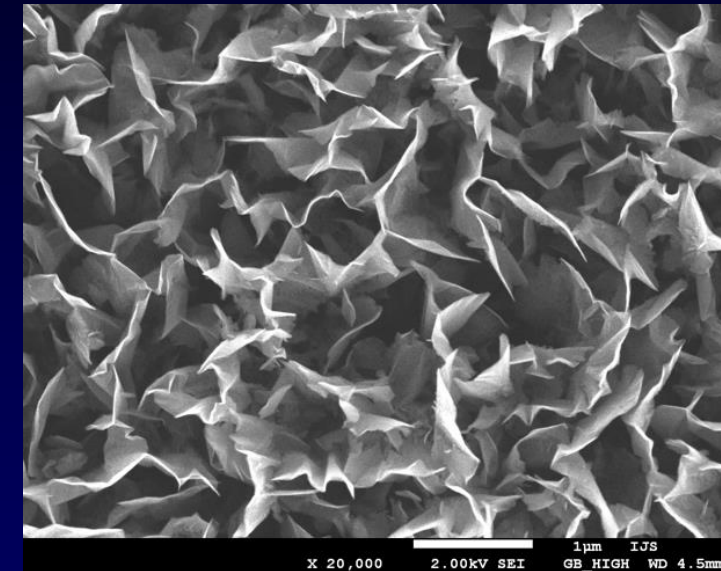
**Hydrogen – driven cars are future (fuel cells)**

ECM-137-10-A-02

**Another example:  $\text{CO}_2 \rightarrow \text{CO} + \text{O}_2$ , better:  $\text{CO}_2 \rightarrow \text{C} + \text{O}_2$**



**Supercaps with nanocarbon  
electrodes exhibit huge capacitance**



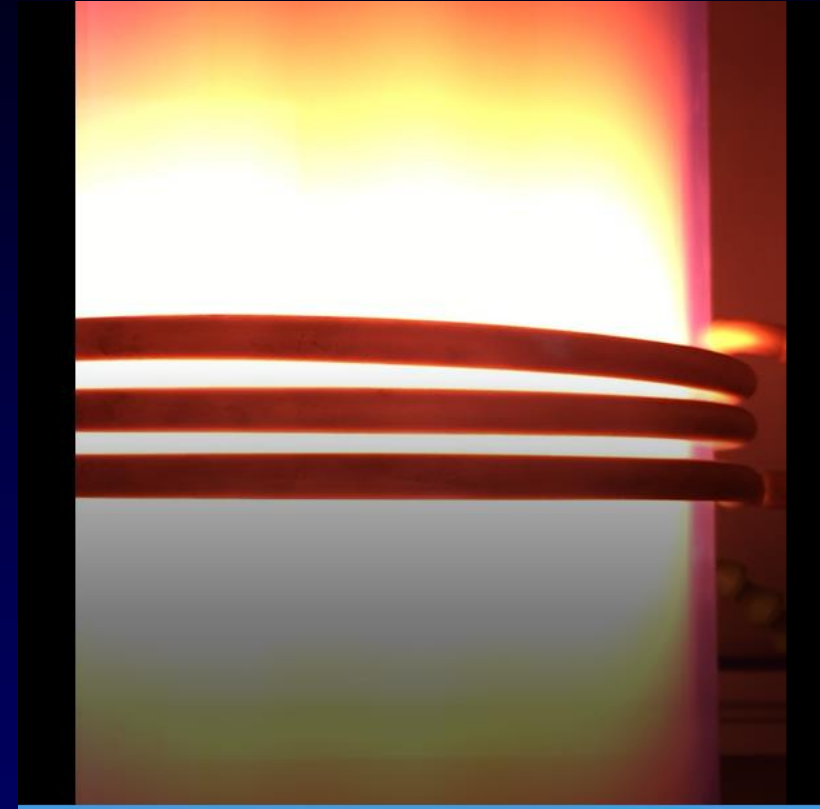
**More examples:**

**Nitrogen + water  $\rightarrow$  hydrogen + nitric oxides**

**Methane + water  $\rightarrow$  methanol + hydrogen**

## Scientific & technological obstacles:

- Power loss by radiation
- Yield vs efficiency
- Gas-phase reactions coefficients not accurate
- Little literature on surface coefficients (catalysts)
- Feeding nanocatalysts at the right position is difficult
- Separation of products is a challenge



**IUVSTA workshop will enable thorough discussion and useful conclusions**

TITLE: IUVSTA Workshop on Plasma-assisted conversion of gases for a sustainable future

VENUE: Cerklje, Slovenia

DATE: 10th – 14th December 2023

Income	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Registration Fee Invited (per person)	900	20	18,000	20 invited speakers
Registration fee Non-Invited (per person)	1,100	10	11,000	poster presenters
IUVSTA funding	9,000	1	9,000	Funding supports for invited speakers
Total (EUR)			38,000	
Expenditures	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Meals (5 days per person)	325	30	9,750	buffet Lunch 25€, buffet Dinner 30€, and Coffee breaks 10€
Excursion (per person)	85	30	2,550	Transportation and Tickets
Banquet (per person)	50	30	1,500	
Meeting Rooms (per day)	500	5	2,500	
Hotel Rooms (5 nights per invited speaker)	600	20	12,000	partially covered by IUVSTA grant
Hotel Rooms (other participants)	600	10	6,000	
Temporary Labors (per person)	0	0	0	Volunteers
Miscellaneous	2,200	1	2,200	Web page, abstract booklet, badges, unexpected extra costs
Airport-hotel transfers, return	50	30	1,500	shared taxi + cable-car
Airticket partial funding (Asia Pacific, per person)	0	0	0	none
Total (EUR)			38,000	

## 5. WS/SC/TTCs (5 min each 20 min total)

proposals presented **HERE...**

**ECM-137-10-A-02**

**ECM-137-10-A-02**

PDF file name	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#2-WS-2	Belgium	11-14 July 2023	University of Mons	NSD	Carla Bittencourt	Carla Bittencourt	"Functional nanostructured surface"	6,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

# IUVSTA Workshop on Functional nanostructured surfaces

ECM-137-10-A-02

ECM-137-10-A-02

11 – 14 July 2023 (tentative)



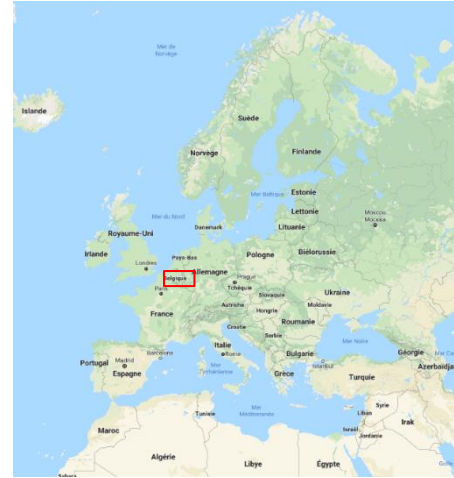
University of Mons, Mons, Belgium, EU

## DIVISIONS:

- Nanometer Structures
- Electronic Materials and Processes
- Surface Engineering

VENUE : University of Mons, Mons, Belgium, EU

Easy access



### Travel - by plane, train or car

- Flights from everywhere in Europe (two main airports well connect to Mons)
- There are direct trains to Mons from the Brussels airport and buses from Charleroi (Brussels-Sud) airport (easy booking and combination with flights)
- The hotels are near the train station (about 300 – 500 meters)

# IUVSTA Workshop on Functional nanostructured surfaces

ECM-137-10-A-02

11 – 14 July 2023 (tentative)

ECM-137-10-A-02

**Purpose:** Bring together a diverse group of researchers focused on nanoscience and nanotechnology problems relevant to environment needs in order to share the state-of-the-art and discuss challenges and opportunities.

## PRINCIPAL THEMES/TOPICS:

- **Materials**

Applications & Devices - nanoelectronics sensors, coatings with anti-pathogenic activity, catalysis, ...

Energy materials - Including photovoltaics, batteries and fuel cells

- **Characterization**

Defects - studies of doped and irradiated interfaces and the resultant defect structures. Plasma surface interaction, Ion and electron irradiation-induced effects in nanostructured. Cold plasmas.

- **Theory**

Methods - application of first principles methods to atomistic modeling of non-ideal nanoscale materials. Including advanced approaches for studying excited states and very large systems, and the limits of accuracy in electronic structure calculations.

Multiscale - approaches to link first principles calculations to larger scale methods, such as kinetic Monte Carlo.

## IUVSTA scientific divisions:

Nanometer Structures Division & Electronic Materials and Processes Division



**INVITED SPEAKERS & Tentative talk:**

- **Eduard Llobet, Universita Rovira i Virgili, Spain**

Facile synthesis of Pd@ ZnO core@ shell nanoparticles for selective ethanol detection



- **Mildred Quintana, University of San Luis Potosi, Mexico**

Synthesis of Ni/GO-TiO<sub>2</sub> composites for the photocatalytic hydrogen production and CO<sub>2</sub> reduction to methanol

- **Lourdes Escobar, San Francisco University, Ecuador**

Mango (Mangifera Indica L.) by-products for cosmetic, food and water treatment applications: A zero-waste and biorefinery approach with classic and new generation solvents

- **Krzysztof Stachowicz, Polish Academy of Science, Poland**

Antiviral activity of galvanic microcells of zinc and copper contained within painted surfaces

- **Maria Chiara Sportelli, University of Bari 'Aldo Moro', Italy**

On the Efficacy of ZnO Nanostructures against SARS-CoV-2

**Workshop structure:**

The workshop will last 4 days (Tuesday (morning) – Friday (14:00)).

Number of expected participants: 46

- Invited lectures.
- Contributed speakers
- Posters session is scheduled in the evenings
- Round tables will be organized to discuss recent results and future trends

Number of speakers 15

Invited talks (55 minutes: 50 +5)

Contributed talks (40 minutes: 35 +5),

Coffee breaks 20 minutes (2/day).

Posters will be attached 2 afternoons (Tuesday to Thursday).

The workshop is expected to be presential, however tools for hybrid or on-line meetings are available

Coffee breaks and lunches are included in the conference fees.

TITLE: IUVSTA Workshop on Functional nanostructured surface				
VENUE: Mons, Belgium				
DATE: 11 – 14 July 2023				
Income	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Registration Fee (per person)	150	40	6.000	40 registered participants plus 6 invited speakers
FNRS funding	3.500	1	3.500	Funding supports for invited speakers
UMONS funding	5.000	1	5.000	Lunch breaks/coffee breaks and
IUVSTA funding	6.000	1	6.000	Funding supports for invited speakers
Total (EUR)			20.500	
Expenditures	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Meals (3.5 days per person)	120	46	5.520	Lunch breaks and Coffee breaks
Excursion (per person)	0	0	0	Transportation and Tickets
Banquet (per person)	120	46	5.520	
Meeting Rooms (per day)	150	4	600	
Hotel Rooms (3 nights per invited speaker)	410	6	2.460	
			0	
Temporary Labors (per person)	0	5	0	
Miscellaneous	1.000	1	1.000	book of abstracts, paper, pen, bags
Airticket partial funding (outside Europe, per person)	1.500	2	3.000	Partial funding for 2 invited speakers
Airticket partial funding (Europa, per person)	600	4	2.400	Partial funding for 8 invited speakers
Total (EUR)			20.500	

Registration fees include lunches (4 days), coffee breaks and conference dinner.

**Budget: Support IUVSTA**



	Unit Cost (EUR)	Quantity	Sub-Total	Remarks
IUVSTA Funding	6000	1	6000	support

**Support 6 invited speakers :**

**6 speakers – airplane = 5400 euro**

**Renting room = 600 euro**

# Functional nanostructured surface

Mons, Belgium



## 5. WS/SC/TTCs (5 min each 20 min total)

proposals presented HERE... Katsuyuki to project

ECM-137-10-A-02

ECM-137-10-A-02

PDF file name	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#3-SCH-1	Poland	1 week in Mid 2023	<i>Adam Mickiewicz University</i>	ASSD	Mikołaj Lewandowski	<b>Mikołaj Lewandowski</b>	"Surface Science Toolbox 2023"	9,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000



## **IUVSTA School „Surface Science Toolbox 2023”**

Assoc. Prof. Dr. Mikołaj Lewandowski  
Polish Vacuum Society  
IUVESTA Applied Surface Science Division

IUVSTA ECM-137  
online, 02.09.2022

## **Applied Surface Science Division of IUVSTA gathers world-class experts in surface science techniques:**

- develop new techniques and data analysis methods/procedures;
- microscopy, spectroscopy, diffraction, etc.;
- methods utilizing electrons, X-rays, neutrons, ions;
- based on different physical and chemical principles;
- providing information on the structure and properties of materials;
- allowing fabrication of nanostructures at surfaces and modifying surfaces in a controlled way by physical and chemical means.

The ASSD Members are perfect Mentors for young scientists.

ECM-137-10-A-02

ECM-137-10-A-02

## **Surface Science Toolbox 2023 IUVSTA School will be dedicated to young scientists:**

- PhD students;
- MSc/BSc/Eng students;
- early-stage PhD researchers.

## **The aim of the School is to provide the Attendees with the knowledge on:**

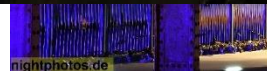
- different surface science techniques;
- their theoretical principles;
- basics of surface nanostructures preparation and surface modification, measurements and data analysis;
- potential applications of different techniques in material studies;
- fundamentals of surface crystallography and epitaxial growth.

# The venue

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Sources: Google Images, poznan.fandom.com, tapeciareria.pl, polskazdrona.eholiday.pl



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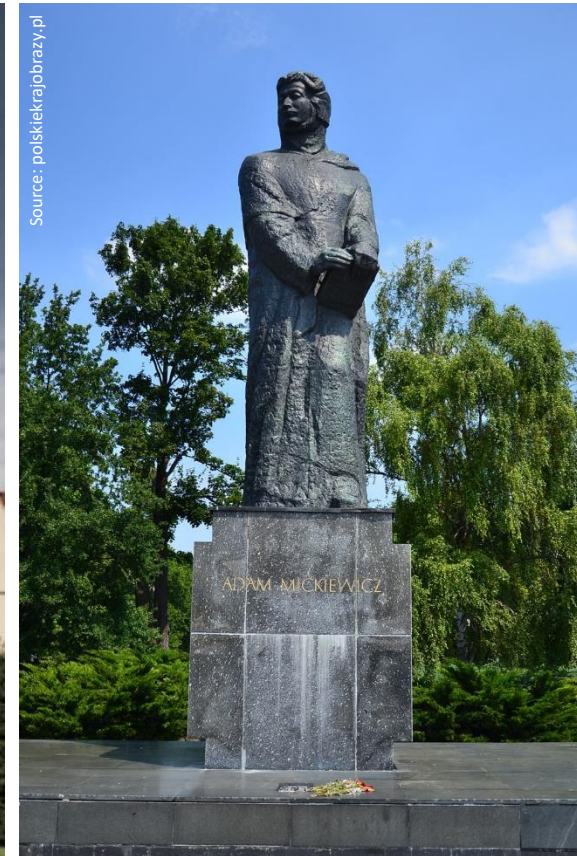


ADAM MICKIEWICZ  
UNIVERSITY  
POZNAŃ

One of the biggest and most prestigious  
Polish Universities



Source: amu.edu.pl



Source: polskiekrajobrazy.pl

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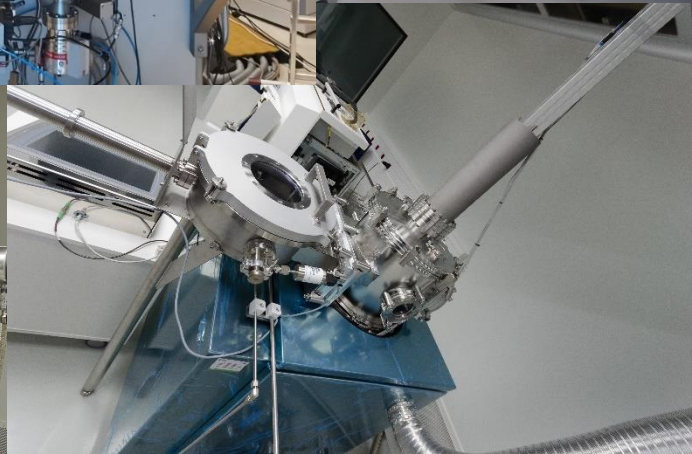
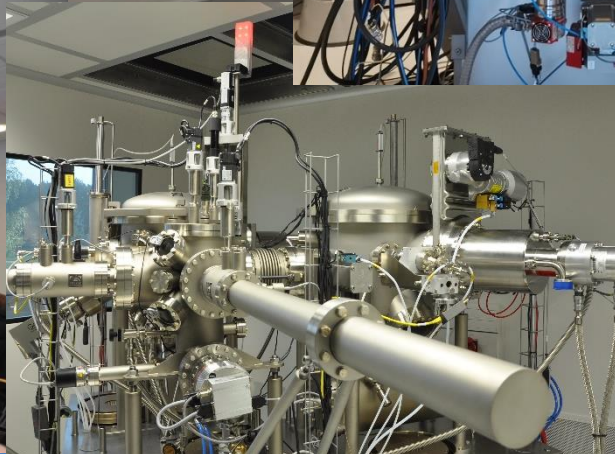
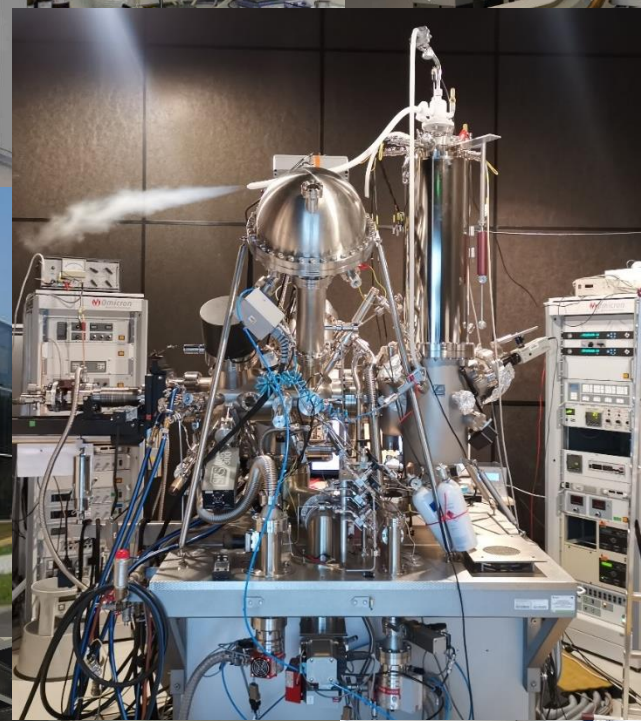
ADAM MICKIEWICZ  
UNIVERSITY  
POZNAŃ

NanoBioMedical Centre

Source: cnbm.amu.edu.pl



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## Surface Science Toolbox 2023 IUVSTA School: Information



**Schedule:** 1 week (4 days) in mid 2023 (TBA)

**Format:** Lectures and laboratories

### Organizers:

Mikołaj Lewandowski, Poland – Main Organizer (Vice-Chair-Elect of ASSD)

John T. Grant, USA – Co-Main Organizer (Chair-Elect of ASSD)

Marko Karlušić, Croatia – Secretary

Osvaldo de Melo, Cuba – Programme Officer

Support from other ASSD Members and members of ML's surface science group members (local organizing committee) will be provided.

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## Surface Science Toolbox 2023 IUVSTA School: Speakers



The lectures will be given mainly by IUVSTA ASSD National Representatives and co-workers, including:

John T. Grant, USA – XPS, AES, LEED

Mikołaj Lewandowski, Poland – STM/STS

Michael Wahl, Germany – ToF-SIMS, Atom Probe

Francesco Ghezzi, Italy – LEIS

Marko Karlušić, Croatia – ion beam techniques

Oswaldo de Melo, Cuba – RHEED, epitaxy

Jennifer MacLeod, Australia – UPS

Johan Gustafson, Sweden – XRD

Stanislav Haviar, Czech Republic – EDS, WDS

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## The Budget

Income	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
<b>Registration fee (per person) - incl. meals, accommodation, public transport ticket, excursion</b>	600	30	18 000	30 registered participants plus 12 invited speakers
IUVSTA funding	9 000	1	9 000	Funding supports for invited speakers
Total (EUR)			27 000	
Expenditures	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Meals (4 days per person)	100	42	4 200	Lunch breaks, dinner breaks and coffee breaks
Gala dinner	20	42	840	Dinner in a traditional Polish restaurant (regional food)
Excursion (per person)	20	42	840	Guided tour: transportation and tickets
Maintenance and variable costs	2 000	1	2 000	Material and labor costs related to the use of lecture halls and laboratories
Hotel rooms (4 nights per person)	260	41	10 660	5 hotel nights for participants and speakers (except local host)
Public transportation 7-day ticket	15	41	615	Tram/bus ticket in Poznan (except local host)
Advertisement	615	1	615	Professional support in creation of dedicated web page
Plane/train ticket partial funding (Europe, per person)	370	9	3 330	Partial funding for 9 invited speakers on request
Plane/train ticket partial funding (US/Asia Pacific, per person)	1 300	3	3 900	Partial funding for 3 invited speakers on request
Total (EUR)			27 000	

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## Apart from science?

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Guided tour



7-day public transportation ticket



Banquet with traditional Polish food





**Say „Yes” to Surface Science Toolbox 2023!**



Thank you for attention.

## 5. WS/SC/TTCs (5 min each 20 min total)

proposals presented HERE... Katsuyuki to project

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PDF file name	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#4-TTC-1	Philippines	26-27 January 2023	<i>Vacuum Society of the Philippines</i>	PSTD	Kathrina Lois M. Taaca	Kathrina Lois M. Taaca	"Plasma and Society II"	2,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

# Plasma and Society II

By the Vacuum Society of the Philippines

# Plasma and Society II

- **Goals of the Course:**

- This technical training course is a continuation of the first technical training course developed by the Vacuum Society of the Philippines (VSP) last April 15 and 16 2021. Similar to the first installment, the training course will also be a 2-day activity to be held on January 26 and 27, 2023. Graduate and undergraduate students, engineers, researchers, and professionals in the academic community and related industries will all be able to enroll in this multidisciplinary technical training course. The training program will target Filipino students and professionals. However, we also intend to welcome interested South East Asian (SEA) individuals. In this installment, the training course is designed to introduce the various vacuum science technology tools. Specifically, the application of molecular dynamics to comprehend the molecular mechanism in a vacuum system. In addition, the course intends to offer molecular dynamics-based vacuum-related studies. Moreover, participants will be introduced to plasma diagnostics and spectroscopic characterizations. A further focus of the session will be the discussion of agricultural applications of vacuum technologies. This course will demonstrate the possibilities and potential applications of vacuum technology in the agricultural sector of the Philippines. After completing the required survey form and evaluation activity, participants will receive a certificate of participation from the Vacuum Society of the Philippines.

# Plasma and Society II Details

- Stand-alone Hybrid Course
- Location: Online via Zoom Web Conference and DMMME Amphitheater, Quezon City, Philippines
- Data: January 26 to 27 2023

# Plasma and Society II Details

- Object of the Course:
  - Data analysis used in studying vacuum science
  - Applying plasma science and technology in agriculture
  - Understanding vacuum science and technology through simulation
- Language
  - English and Filipino
- Expected educational and job level of students
  - Undergraduate and Graduate Students (MS and Ph.D.), engineers, researchers, and professionals in the academe and relevant industries

# Plasma and Society II Training Course Proposal

- **Part 1: Data Analysis used in studying Vacuum Science (6hrs)**
  - Plasma diagnostics principles and uses (3 hrs)
  - X-ray photoelectron and absorption spectroscopy (3hrs)
- Possible Speakers: Dr. Narong Chanlek, Dr. Hideki Nakajima, Prof. Anouk Galtayries, Prof. Takayoshi Tsutsumi, Dr. John Grant, Prof. Motoi Wada, Dr. Alexander Fridman

# Plasma and Society II Training Course Proposal

- **Part 2: Applying Plasma Science and Technology in Agriculture (2hrs)**
- The purpose of this session is to highlight the use of plasma and vacuum science and technology to agriculture. This can be a special session in this technical training course since the Philippines is known to be an agricultural country. The session will consist of invited speakers who can be a student or a professional whose studies use vacuum systems for agricultural purposes.
- Possible Speakers: Dr. Giovanni Malapit, Dr. Christian Mahinay, Dr. David Ruzic, Dr. Koichi Takaki, Dr. Douyan Wang,

# Plasma and Society II Training Course Proposal

- **Part 3: Understanding Vacuum Science and Technology through Simulation (8 hrs)**
  - Practices on Molecular Dynamics simulation and its advantage in studying vacuum science and technology (2 hrs)
  - Application of Molecular Dynamics (5 hrs)
  - Vacuum-related studies applying molecular dynamics for analysis (1 hr)
- Possible speakers: Ms. Catherine Joy Dela Cruz, Prof Matthew Sherburne, Prof. Satoshi Hamaguchi, Mr. Jomar Tercero, Dr. Eun Ha Choi

# Proposed budget

ECM-137-10-A-02	Possible Income	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
	Registration Fees (online)	20	60	1,200	
	Registration Fees (on-site)	40	30	1,200	
	IUVSTA support	2,000	1	2,000	
	Total (EUR)			4,400	ECM-137-10-A-02
	Proposed Budget	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
	Zoom Meeting Monthly Subscription	25	1	25	The training course will be hybrid to allow participants from other regions of the Philippines
	Advertisement	200	1	200	Publicity of the training course will be boosted in various social media outlet to further increase the reach of the training course.
	Temporary Labors (per person)	30	8	240	Assigned staff for logistics and technicals of the event; Staffs for preparing the publicity materials of the course will also be hired
	Preparation and Delivery of Certificates	100	1	100	To print hard copies of certificates and deliver the certificates to the participants
	Preparation and Printing of Handouts and Modules	285	1	285	To print materials prepared by the lecturers and give them to the participants
	Lunch, Snacks, Coffee Breaks (2 days)	25	50	1,250	Packed lunch and snacks (AM and PM) for on-site participants, speakers, and staff
	Token for Speakers	30	10	300	Possible tokens for speakers- jacket, shirt, mug, etc
	Venue Rental (including Internet and Communication Expenses)	2,000	1	2,000	To prepare a token of appreciation to the invited speakers of the training course, including internet and communication expenses
	Total (EUR)			4,400	

## 5. WS/SC/TTCs (5 min each 20 min total)

proposals presented HERE... Katsuyuki to project

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PDF file name	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#1-WS-1	Slovenia	3-7 December 2023	<i>Slovenian Vacuum Society</i>	PSTD	Miran Mozetič	Miran Mozetič	IUVSTA Workshop on Plasma-assisted conversion of gases for a sustainable future	9,000
#2-WS-2	Belgium	11-14 July 2023	<i>University of Mons</i>	NSD	Carla Bittencourt	Carla Bittencourt	"Functional nanostructured surface"	6,000
#3-SCH-1	Poland	1 week in Mid 2023	<i>Adam Mickiewicz University</i>	ASSD	Mikołaj Lewandowski	Mikołaj Lewandowski	"Surface Science Toolbox 2023"	9,000
#4-TTC-1	Philippines	26-27 January 2023	<i>Vacuum Society of the Philippines</i>	PSTD	Kathrina Lois M. Taaca	Kathrina Lois M. Taaca	"Plasma and Society II"	2,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

6. Questions for presenters (10 min)
7. Voting
8. Other business Decarbonization survey! <https://forms.gle/MKMGR1URjg7o4Whe6>
9. Adjourn

# Thanks!

**Jay Hendricks, Scientific Director, September 2<sup>nd</sup> 2022**

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*Jay Hendricks*

Scientific Director, 2019-2022

IUVSTA



National Institute of Standards and  
Technology  
100 Bureau Drive  
Gaithersburg, MD 20899

Dr. Jay H. Hendricks, Scientific Director IUVSTA





Figure 2: ECM 133 one of the many all-virtual ECM's held during this triennium.

This concludes the STD report  
Thank you to the Scientific Secretary, and  
The Education Committee,  
and to the presenters for their report and applications!

Thank you!

## VOTING at the ECM



## 5. WS/SC/TTCs (5 min each 20 min total)

proposals presented HERE... Katsuyuki to project

ECM-137-10-A-02

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PDF file name	Place/Country	Status/Date	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
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#4-TTC-1	Philippines	26-27 January 2023	<i>Vacuum Society of the Philippines</i>	PSTD	Kathrina Lois M. Taaca	Kathrina Lois M. Taaca	"Plasma and Society II"	2,000

Maximum allowed funding (Euro): WS/Sch = 9,000, TCC= 2,500, SC=2,000

## #1-WS-1

\*\*\*\*\*

(1) WS\_1 Voted: 10 votes yes, 0 vote no, and 1 vote abstention

**Dear Madam President,**

According to the results voted in the STD, the STD proposes a **Workshop** with title “**IUVSTA Workshop on Plasma-assisted conversion of gases for a sustainable future**” to be held in Slovenia to the ECM 137 for final approval as the 97th **IUVSTA Workshop** with IUVSTA financial support of **9000 EUR**.

\*\*\*\*\*



#2-WS-2

\*\*\*\*\*

(2) WS\_2 Voted: 10 votes yes, 0 vote no, and 1 vote abstention

Dear Madam President,

According to the results voted in the STD, the STD proposes a **Workshop** with title “**IUVSTA Workshop on Functional nanostructured surface**” to be held in Mons, Belgium to the ECM 137 for final approval as the **98th IUVSTA Workshop** with IUVSTA financial support of **6000** EUR.

\*\*\*\*\*



## #3-SCH-1

\*\*\*\*\*

**(3) Sch\_1 Voted: 11 votes yes, 0 vote no, and 0 vote abstention**

**Dear Madam President,**

According to the results voted in the STD, the STD proposes a **School** with title “**Surface Science Toolbox 2023**” to be held in Poznań, Poland to the ECM 137 for final approval as the **19th IUVSTA School** with IUVSTA financial support of **9000 EUR**.

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#4-TTC-1

\*\*\*\*\*

(4) TTC\_1 Voted: 11 votes yes, 0 vote no, and 0 vote abstention

Dear Madam President,

According to the results voted in the STD, the STD proposes a **Technical Training Course** with title “**Plasma and Society II**” to be held in the Philippines in the hybrid mode event to the ECM 137 for final approval as the **28th IUVSTA Technical Training Course** with IUVSTA financial support of **2000 EUR**.

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