Scientific and Technical Directorate(STD)

Jay Hendricks, Scientific Director Katsuyuki Fukutani, Scientific Secretary

> ECM-137 Virtual Meeting September 2nd 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:
 - <u>Technologies for Sustainability</u> (clean water, air,
 - **Quantum Science** (AVS Quantum Science journal, Quantum Based Units, Quantum Computing/deep learning).
 - **<u>Photonics and Nano photonics</u>** (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!!!





IUVSTA Division	<u>Chair</u>	Vice Chair	Secretary
ASSD - Applied Surface Science	Leszek Markowski	John T. Grant	
BID - Biointerfaces Division	Dmitri Petrovykh	Miguel Manso	Carlos R. Grandini
EMPD - Electronics Materials & Proc.	Ivana Capan	Monika Kwoka	Reinhard Schwarz
NSD - Nanometer Structures	Ana Gomes Silva	Shuji Hasegawa	Carla Bittencourt
PSTD - Plasma Science & Tech.	Satoshi Hamaguchi	Miran Mozetič	Deborah O'Connell
SED - Surface Engineering	Ivan G. Petrov	Peter Schaaf	Monika Jenko
SSD - Surface Science	María Carmen ASENSIO	Mario Rocca	Fumio Komori
TFD - Thin Film	Mile Ivanda	Papken Hovsepian	Diederik Depla
VSTD - Vac. Science & Tech.	Marcelo J. Ferreira	Martin Wüest	Joe Herbert
EC- Education Committee	Alberto Tagliaferro	Ana Silva	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 96th IUVSTA workshop on "HiPIMS Today-Recent Development of High-Power Impulse" Magnetron Sputter" was the first such IUVSTA workshop. This was followed by the 24th 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	SCH	тсс	SC
	Workshops	Schools	Technical Training Course	Short Course
				(may adapted to webinar)
Submission:	TO: Scientific Secretary	TO: Scientific Secretary	TO: Scientific Secretary	TO: Scientific Secretary
	CC: SD + organizers	CC: SD + organizers	CC: ECC/ECVC/ECS/SD + organizers	CC: ECC/ECVC/ECS/SD + organizers
Summary/	To <i>advance</i> scientific knowledge in a field; rather	To <i>educate</i> on existing knowledge	To educate at the beginner level,	To educate on existing knowledge "state of the
Purpose:	than be educational of existing knowledge		generally not same topic in	art "in a specific field
			sequential years	
Organized	Organized IUVSTA Division(s)/National Vacuum	Organized IUVSTA	Organized IUVSTA	Organized IUVSTA Division(s)/National Vacuum
by/Underwrit	Society or university	Division(s)/National Vacuum Society	Division(s)/National Vacuum	Society or university
er		or university	Society or university	
Format:	Format should be like that of a "Gordon Conference"	Format is a <i>school</i> with Intense	Format Example: Practical vacuum	Held in conjunction with existing scientific
	with no publication of proceedings.	instruction on a specific topic with	science for the regional technician	meeting. Example AVS Short Courses
		learning/educational materials	/engineer	
Location:	Remote location (not large city) in a hotel hostel	Typically University campus	Regional	Regional to Main scientific meeting
	university campus, or small town.		iteg.onai	
	, , ,			
Size/Duration	40-50 delegates	40-80 students	Any	any
	4-6 days	1 to 2 weeks	1-3 days	1-2 days
Participation:	Organizers invite 10-20 talks of International	International teaching experts in the	Regional experts and students	Regional experts and students
	experts	field		
Program:	Dominated by single session oral presentations by	Intense instruction/school on a	Dominated by regional experts in	1-2 days held in conjunction with a main scientific
	invited speakers. Lots of unstructured discussion	specific topic with learning/	the field and often taught in the	meeting.
	space in program and time for questions (opposite	educational materials provided often	local language.	
Funding:	6.000-9.000 Euro	6.000-9.000 Euro	2.500 Euro maximum	2.000 Euro maximum
	Tunically, English (Franch (Cormon parmitted)	Typically, English (Franch/Carmon		English (French (Cormon normitted), maybe
Language:	rypically, English (French/German permitted)	nermitted)		regional if main conference is regional language
		permitted	cheodraged	(unusual).
Approval	STD→ECM	STD→ECM	EC→STD→ECM	EC→STD→ECM
Route				

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

(A) <u>Workshops:</u>

92nd IUVSTA Workshop "Workshop on Advanced Spectroscopy and Transport for 2D Materials at Surfaces" Location: Okinawa, Japan Date: 18-21 September, 2022 Web: <u>https://hasegawa.issp.u-tokyo.ac.jp/workshop</u>

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

95th IUVSTA Workshop "Plasmonic Thin Films: Theory, Synthesis and Applications" Location: Guimarães, Portugal Date: 20-23 June, 2022 Web: <u>https://www.lab4nano.com/home/index.php/95th-iuvsta-workshop</u>

96th IUVSTA Workshop "HiPIMS Today-Recent Development of High-Power- Impulse Magnetron Sputtering" Location: Sweden (on-line) Date: 20-22 January, 2021



(A) <u>School</u> : One School Funded

"Physics at Nanoscale" Location: Skalský Dvůr, Czech Republic (Hybrid) Date: May 31-June 4, 2021 Web: https://www.iybssd2022.org/en/physics-at-nanoscale/

(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

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

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

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

Report filename	Place/ Country	Status/D ate	Organizer (underwriter)	IUVSTA Committee	Primary Contact	Presenting	Title	(€)
#1 Report TTC 25	Sorocaba, SP, Brazil	08- 12,Aug.202 2	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 th May to 2 nd 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

Dr. Jay H. Hendricks, Scientific Director IUVSTA

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

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	<u>Juan.F.Sanchez@u</u> <u>v.es</u>	"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	<u>shuji@surface.phy</u> <u>s.s.u-tokyo.ac.jp</u>	"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	<u>petrov@illinois.e</u> <u>du</u>	"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)

Title	Place/ Country	Status/Date	Organizer (underwriter	IUVSTA Committee	Primary Contact	Title	(€)
TTC 21	Štrbské Pleso, Hotel Trigan	Spring 2023 as in person meeting	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 https://leempeem1 2.secv.es/	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

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

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

Dr. Jay H. Hendricks, Scientific Director IUVSTA







IUVSTA International Union of Vacuum Science Technology & Applications www.iuvsta.org

Workshop proposal

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

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

<u>Plasma conversion</u>: methane \rightarrow butane + hydrogen



Liquid butane is easy for transport



Hydrogen – driven cars are future (fuel cells)



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



More examples:



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Another example: $CO2 \rightarrow CO + O2$, better: $CO2 \rightarrow C + O2$

Supercaps with nanocarbon electrodes exhibit huge capacitance



Nitrogen + water \rightarrow hydrogen + nitric oxides Methane + water \rightarrow methanol + hydrogen





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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	Volounteers
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	

prof. dr. Alenka Vesel, President of DVTS

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

proposals presented HERE...

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

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

UVSTA

Dr. Jay H. Hendricks, Scientific Director IUVSTA

IUVSTA Workshop on Functional nanostructured surfaces

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

11 – 14 July 2023 (tentative)

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-TiO2 composites for the photocatalytic hydrogen production and CO2 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.





Budget

UMONS

TITLE: IUVSTA Workshop on Functi	onal nanostruct	tured surfac	e	
VENUE: Mons, Belgium				
DATE: 11 – 14 July 2023				
T	Unit and (TUD)	Orrentitus	0-1 T-1-1 (TIT)	Demode
Income	Unit cost (EUK)	Quantity	Sub-1otal (EUK)	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 luchs (4 days), coffe breaks and conference dinner.



Budget: Suppor	t IUVSTA			
	Unit Cost (EUR)	Quantity	Sub-Total	Remarks
IUVSTA Funding	6000	1	6000	support
Support 6 in 6 speakers – Renting root	vited speakers : - airplane = 5400 m = 600 euro	: D euro		

IUVSTA

Functional nanostructured surface

Mons, Belgium







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

proposals presented HERE... Katsuyuki to project

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

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

Dr. Jay H. Hendricks, Scientific Director IUVSTA





IUVSTA School "Surface Science Toolbox 2023"

Assoc. Prof. Dr. Mikołaj Lewandowski

Polish Vacuum Society IUVSTA 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.

Dr. Mikołaj Lewandowski Associate Professor NanoBioMedical Centre Adam Mickiewicz University in Poznań, Poland

-mail: lewandowski@amu.edu.

https://www.surfacescience.pl

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.

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https://www.surfacescience.pl





Adam Mickiewicz University Poznań

One of the biggest and most prestigious Polish Universities



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https://www.surfacescience.pl

IUVSTA ECM-137 online, 02.09.2022



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

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

Dr. Mikołaj Lewandowski Associate Professor NanoBioMedical Centre Adam Mickiewicz University in Poznań, Poland

E-mail: lewandowski@amu.edu

https://www.surfacescience.pl



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 Osvaldo de Melo, Cuba – RHEED, epitaxy Jennifer MacLeod, Australia – UPS Johan Gustafson, Sweden – XRD Stanislav Haviar, Czech Republic – EDS, WDS



Dr. Mikołaj Lewandowski Associate Professor NanoBioMedical Centre Adam Mickiewicz University in Poznań, Poland

-mail: lewandowski@amu.edu.

https://www.surfacescience.pl

IUVSTA ECM-137 online, 02.09.2022

The Budget

Income	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Registration fee (per person) - incl. meals, accommodation, public transport ticket, excursion	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	

Dr. Mikołaj Lewandowski Associate Professor NanoBioMedical Centre Adam Mickiewicz University in Poznań, Poland

E-mail: lewandowski@amu.edu.

ttps://www.surfacescience.pl

IUVSTA ECM-137 online, 02.09.2022

Apart from science?



Dr. Mikołaj Lewandowski Associate Professor NanoBioMedical Centre Adam Mickiewicz University in Poznań, Poland

-mail: lewandowski@amu.edu.p

https://www.surfacescience.pl





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

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

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

Dr. Jay H. Hendricks, Scientific Director IUVSTA

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

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	
Proposed Budget	Unit cost (EUR)	Quantity	Sub-Total (EUR)	Remarks
Zoom Meeting Monthly	25	1	25	The training course will be hybrid to allow
Subscription				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	285	1	285	To print materials prepared by the lecturers and
Modules				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	2,000	1	2,000	To prepare a token of appreciation to the invited
Communication Expenses)				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

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

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

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Dr. Jay H. Hendricks, Scientific Director IUVSTA

6. Questions for presenters (10 min)

7. Voting

8. Other business Decarbonization survey! <u>https://forms.gle/MKMGR1URjg7o4Whe6</u> 9.Adjourn

Thanks!

Jay Hendricks, Scientific Director, September 2nd 2022

Jay Hendricks	
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IUVSTA

Scientific Director, 2019-2022



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)

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

Dr. Jay H. Hendricks, Scientific Director IUVSTA



#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.



#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.

