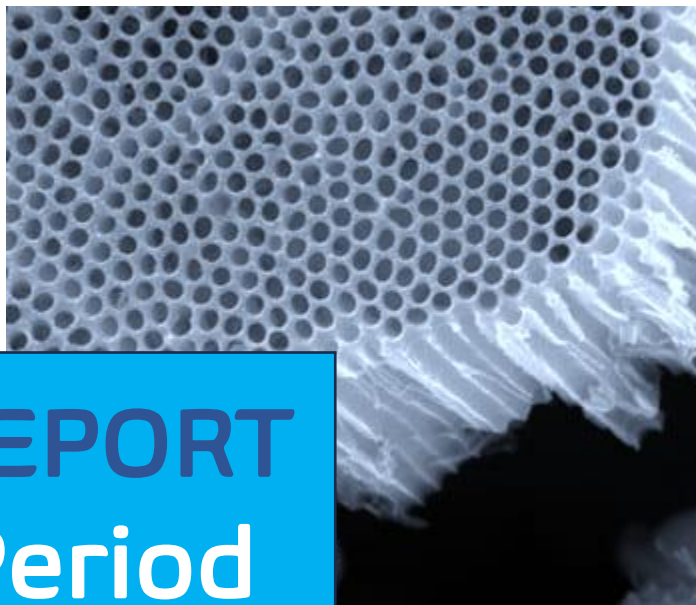




ACTIVITY REPORT

4th Grant Period

Cost Action	CA20126 (NetPore)	Period
Chair	Lluís Marsal	01/11/2024 - 20/10/2025
Document written by	Núria Fernández	

OUTLINE OF ACTIVITIES

1. CG Meeting 1 (virtual).....	4
2. MC Meeting & Workshop– Montpellier (France)	5
3. CG Meeting 2 (virtual).....	12
4. CG Meeting 3 (virtual).....	13
5. NETPORE Workshop – Horten (Norway)	14
6. NETPORE Industry Workshop 3 – Lisbon (Portugal)	17
7. CG Meeting 4 – Palma de Mallorca (Spain)	21
8. 4 th Summer Training School – Palma de Mallorca (Spain)	22
9. CG Meeting 5 (virtual).....	23
10. NETPORE Conference – Tarragona (Spain)	24

AWARDED GRANTS

MOBILITY GRANTS	CONFERENCE GRANTS
20 STSM	8 YRIG
	4 ITCG
	2 DCG



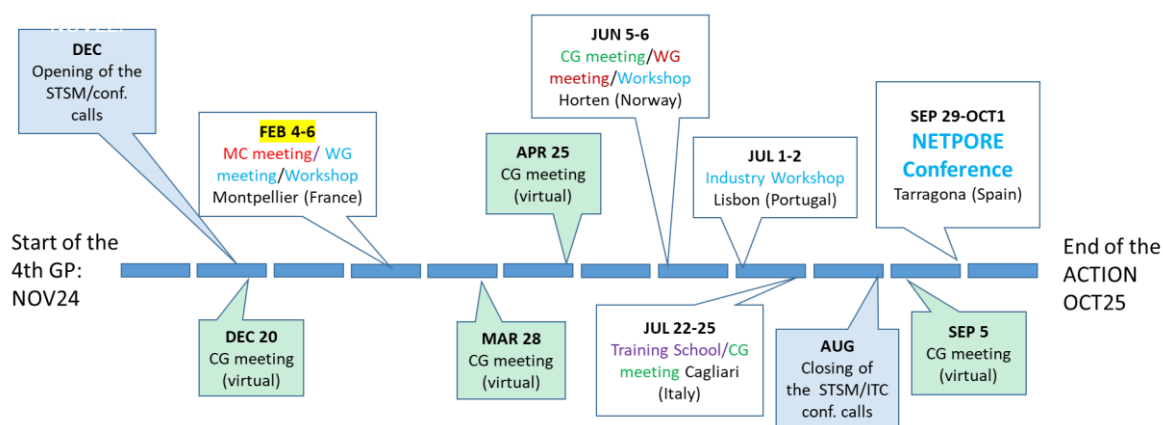
ACTIVITIES

1. CG Meeting 1 (virtual)

Date	20/12/2024
Location	Online (Teams)
Participants	5
Organizer	Lluís Marsal

Meeting highlights

- Revision of new WG applications: 12
- Organization of MC meeting in Montpellier
- Resume of the Activities for the 4th GP



Scheme 1. Timeline of 4th GP Activities

Decisions

- ✓ New 12 applications have been approved.
- ✓ MC meeting moved to 4-6th of February, a tentative schedule has been set.

2. MC Meeting & Workshop– Montpellier (France)

Date	04/02/2025 – 06/02/2025
Location	Pôle Chimie Balard Recherche, CNRS
Participants	32
Organizer	Frederique Cunin & Lluís F. Marsal

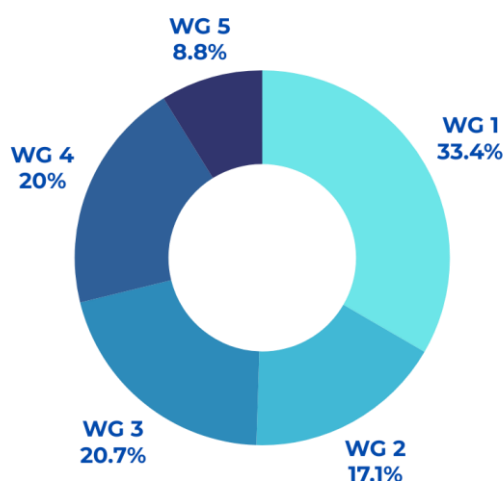
Meeting highlights

- Review of new WG applications: 9
- Recap of the CG meetings: Decisions took and e-votes since the last MC meeting
- Recount of NETPORE membership
- Presentation of the budget status until date
- Progress of the on-going activities and MoU Objectives
- Planification of future Action activities
- Discussion about the future plans for the network

NETPORE Membership

Table 1. Resume of NETPORE WGs participation.

Countries involved	44 (30 in the MC)
Nº of WG members	343
ITC	59%
YRI	44%
Female participation	44%



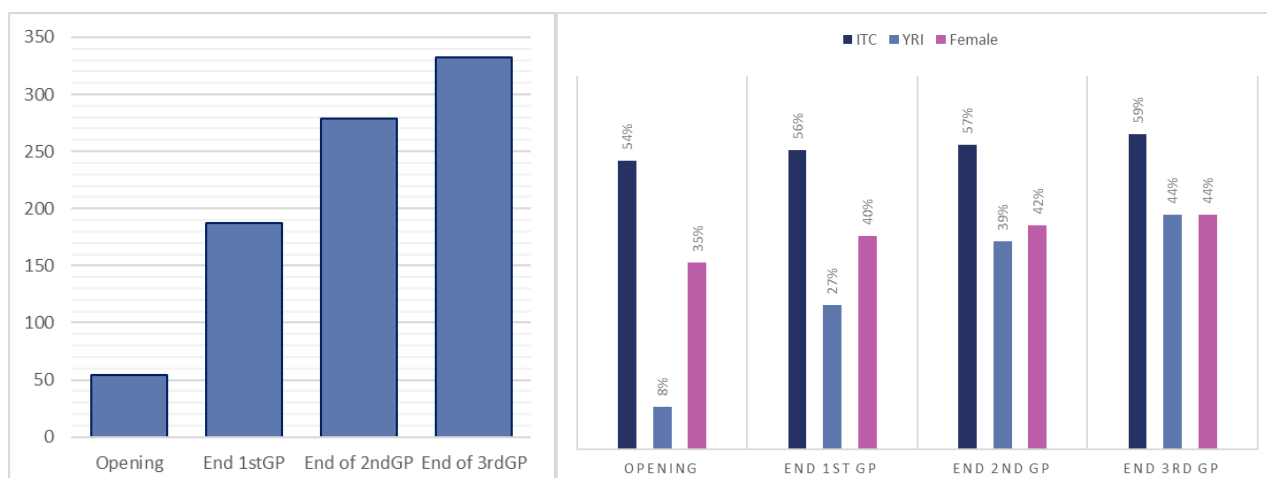
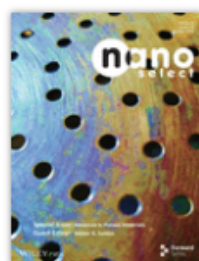


Figure 1. A) Evolution of WG members applications. B) Evolution of the WG membership in terms of ITC, YRI and female representation.

Progress of Activities



Nano Select: Volume 5, Issue 7-8 Special Issue: Advances in Porous Materials

August 2024

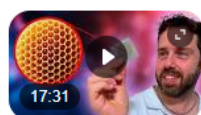
Issue Edited by: **Hélder A. Santos**

Scheme 2. Front cover of Nano Select Vol.5 Special Issue. Image based on the article Advanced porous materials for antimicrobial treatment by Rafael Miguel Sábio et al., <https://doi.org/10.1002/nano.202300114>.

1. R. Miguel Sábio, G. Corrêa Carvalho, J. Li, M. Chorilli, and H. A.Santos, "Advanced Porous Materials for Antimicrobial Treatment," NanoSelect 5 (2024): 2300114. <https://doi.org/10.1002/nano.202300114>.
2. S. Çitoğlu and H. Duran, "Recent Advances in Porous Nanomaterials-Based Drug Delivery Systems for Osteoarthritis," Nano Select 5 (2024):2300099. <https://doi.org/10.1002/nano.202300099>.
3. H. Sopha, M. Alijani, M. Sepúlveda, and J. M. Macak, "Recent Advances in TiO₂ Nanotube Layers – A Mini Review of the Latest Developments in Nanotube Preparation and Applications in Photocatalysis and Microwave Sensing," Nano Select 5 (2024): 2300140. <https://doi.org/10.1002/nano.202300140>.

4. M. D. Garrido, M. Benítez, J. V. Ros-Lis, and P. Amorós, “A Travel Though the Atrane Route, a Versatile Tool for the Materials Soft-Synthesis: A Twenty-Five Years Perspective,” Nano Select 5 (2024):2300169. <https://doi.org/10.1002/nano.202300169>
5. N. T. Le, G. R. Akkaraju, and J. L. Coffey, “Porous Silicon Nanotube Bundles as Nanocarriers for Small Interfering RNA Delivery,” Nano Select 5 (2024): 2300111. <https://doi.org/10.1002/nano.202300111>.
6. P. Granitzer, K. Rumpf, R. Gonzalez-Rodriguez, and J. L. Coffey, “Pt-Fe Loaded Nanostructured Silicon and Improvement of the Magnetic Performance,” Nano Select 5 (2024): 2300166. <https://doi.org/10.1002/nano.202300166>.
7. S. Dominguez-Gil, R. Sala, V. J. Morel, et al., “Rhabdomyosarcoma Targeting with Tuned Porous Silicon Nanoparticles,” Nano Select 5 (2024):2400004. <https://doi.org/10.1002/nano.202400004>.
8. R. F. B. Valadez, A. D. A. Flores, and C. Pacholski, “Stimuli-Responsive Hydrogel Microgels on Porous Silicon One-Dimensional Photonic Crystals: Tapping the full Potential for Optical Sensor Applications,” Nano Select 5 (2024): e2300100
9. N. Tabassum, D. Rudd, L. i Yan, N. H. Voelcker, and M. Alba, “Porous Silicon Microneedle Patches for Delivery of Polymyxin-Based Antimicrobials,” Nano Select 5 (2024): 2300116. <https://doi.org/10.1002/nano.202300116>.
10. G. C. Carvalho, G. D. Marena, A. Do Nascimento, et al., “Physicochemical Characterization of a Lycopene-Loaded Mesoporous Silica Nanoparticle Formulation,” Nano Select 5 (2024): 2300131. <https://doi.org/10.1002/nano.202300131>.
11. A. Mahran, E. Özliseli, Q. Wang, et al., “Semi-Solid 3D Printing of Mesoporous Silica Nanoparticle-Incorporated Xeno-Free Nanomaterial Hydrogels for Protein Delivery,” Nano Select 4 (2023): 598–614
12. A. Castro, L. P. Ferreira, M. Godinho, B. J. Rodriguez, P. M. Vilarinho, and P. Ferreira, “Quasi-Hexagonal Nanopatterned Porous Cobalt Ferrite Thin Films Prepared Via Block Copolymer Self-Assembly,” Nano Select 5 (2024): 2300113. <https://doi.org/10.1002/nano.202300113>.

NANO-SIZED HONEYCOMBS



These videos are translated from my main YouTube channel in Spanish.
ONLINE CHEMISTRY COURSES (SPANISH): <https://www.breakingvlad.com>
JOIN ...

Scheme 3. Caption of the video Nano-Sized Honeycombs by Braking Vlad supported by NetPore.

The **Roadmap** documents are in writing progress. The members that are actively participating are listed below:

- Anton Ficaí
- Arlete Apolinario
- Malgorzata Norek
- Paula Ferreira
- Narcis Duteanu
- Natasa Novak Tusar
- Lluís Marsal

NETPORE future plans

- Transfer all the network activity to NETPORE Website
- Annual NETPORE Conference
- Annual NETPORE Summer School
- Keep participating in reference international conferences.

Workshop Program & Schedule

February 4th, 2025

13h30-14h30 Welcome of the participants

14:30-15:30	Management Committee Meeting (Lluís Marsal)
15:30-16:00	Coffee Break
16:00-17:30	Management Committee Meeting (Lluís Marsal)

Free Evening

February 5th, 2025

9:15-9:30	Opening of the Workshop (Frederique Cunin)
9:30-9:45	Presentation of the <i>Pôle Chimie Balard</i> (Frederique Cunin)
9:45-10:15	Invited conference <i>Solvothermal carbonization as a tool for the design of functional materials with multiscale porosity.</i> Nicolas Brun - Institut Charles Gerhardt Montpellier, France.

10:15-10:30	<i>Development of novel sensing platforms at the Biosense institute.</i> Nikola Knežević, Biosense Institute, University of Novi Sad, Serbia.
10:30-10:45	<i>Macro/micro-porous calcium phosphate parts for bone tissue engineering</i> Stéphane Hocquet, Centre de Recherche de l'Industrie Belge de la Céramique, Belgium.
10:45-11:15	Coffee Break
11:15-11:30	<i>g-C₃N₄/Ag₃PO₄ containing coatings for indoor air purification.</i> Christos Trapalis, National Centre for Scientific Research "Demokritos", Athens 15341, Greece.
11:30-11:45	<i>Exploring Photocatalytic Materials: Forms, Functions, and Integration in Advanced Oxidation Processes.</i> Andraž Šuligoj, University of Ljubljana, Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia.
11:45-12:00	<i>Application of porous anodic aluminum oxide (AAO) as a template for carbon-based materials</i> Dilyana Gospodinova, Technical University of Sofia, Faculty of Electronic Engineering and Technologies and Faculty of Electrical Engineering, Bulgaria.
12:00-12:15	<i>Anticancer effect of photocatalytic nanoparticles</i> Nefeli Lagopati, National and Kapodistrian University of Athens (NKUA), Medical School, Laboratory of Biology, Athens, 11527, Greece
12:15-12:30	<i>Theoretical Insights into GMA-Based Sorbent Efficiency</i> Ljiljana Suručić, Faculty of Medicine, University of Banja Luka, BIH.
12:30-14:00	LUNCH

15:00-17:00 **Visit Tour in Montpellier "The Great Sites in the History of Medicine"**
Location : Hôtel St Côme, 32 Grand rue Jean Moulin, 34000 Montpellier.

20:00 **Dinner – Restaurant "Le Petit Jardin »** (<https://www.petit-jardin.com/>)
Location : 20 Rue Jean Jacques Rousseau, 34000 Montpellier.

February 6th, 2025

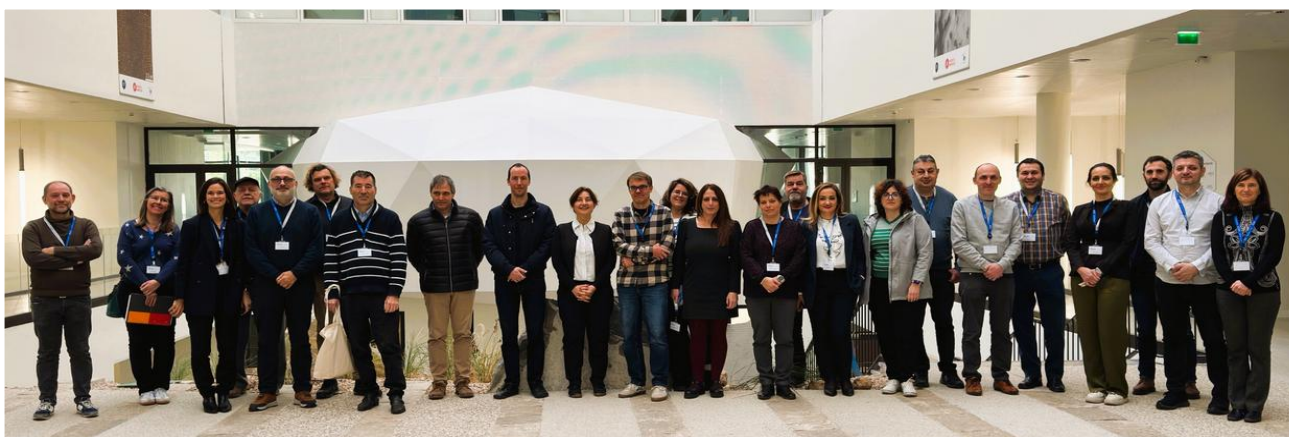
9:15-9:30	Presentation of the Institut Carnot Cirimat Yannick Guari - Institut Charles Gerhardt Montpellier, France.
9:30-10:00	Invited conference <i>Dimensionality control in mesoporous silica: from 0D to 3D materials.</i> Tangi Aubert - Institut Charles Gerhardt Montpellier, France.
10:00-10:15	<i>Implantable and Bioresorbable Label-Free Biosensors: Leveraging Natural and Synthetic Receptors in Nanoporous Silica Optical Platforms</i> Giuseppe Barillaro - Information Engineering Dpt, University of Pisa, Italy.
10:15-10:30	<i>Mesoporous Silica based Platforms in Tuned Drug Delivery</i> Anton FICAI, University POLITEHNICA of Bucharest, Gh. Polizu 1-7, 011061 Bucharest, Romania.
10:30-10:45	<i>Advancing Structural Engineering of Nanoporous Anodic Alumina: Research and Applications.</i>

	Lluís F. Marsal, Department of Electronic Engineering, University Rovira i Virgili, Tarragona, 43007, Spain
10:45-11:15	Coffee Break
11:15-11:45	Invited conference <i>Nano-PERLs: Advanced Tools for Biomedical Imaging and Therapy in Deep Tissue.s</i> Aurélie Bessière - Institut Charles Gerhardt Montpellier, France.
11:45-12h30	Working group meeting
12:30	Closing of the Meeting
12:30-14:00	LUNCH
13:30-14:15	Optional visit of the Pole Chimie Balard Analysis Platform

Decisions

- MC members support the decisions took by the CG.
- New 9 WG applications have been approved.
- MC support the proposals for the NetPore Conference
- To give continuity to the NetPore Conference has gain over the other proposals to maintain the network active as well as the Website as the hub for the registered members.

Visual Recap





3. CG Meeting 2 (virtual)

Date	28/03/2025
Location	Online (Teams)
Participants	7
Organizer	Lluís Marsal

Meeting highlights

- Revision of new WG applications: 8
- Resume of the budget status after the MC meeting: leftover to be relocated.
- Grant calls launched: 12 STSM and 6 Conference Grant applications received.
- Organization of the 2nd Workshop in Horten (Norway) and the Industry Workshop in Lisbon.
- Organization and relocation of the Summer Training School.
- First plan for the NETPORE Conference

Decisions

- New 8 applications have been approved
- Leftover from MC meeting relocated to Grants
- Close the Conference Grants call
- The CG support the participation conditions for the Industrial Workshop in Lisbon

4. CG Meeting 3 (virtual)

Date	25/04/2025
Location	Online (Teams)
Participants	6
Organizer	Lluís Marsal

Meeting highlights

- Revision of new WG applications: 3
- Resume of the budget status after Grant budget relocation.
- Ultimate the details of the 2nd Workshop in Horten and the Industry Wokshop in Lisbon.
- Organization of the Summer Training School.

Decisions

- New 3 applications approved
- Grant budget overspent have been approved
- Relocation of the TS to Palma de Mallorca (Spain) on July 21-24

5. NETPORE Workshop – Horten (Norway)

Date	05/06/2025 – 06/06/2025
Location	University of South-Eastern Norway (USN), Vestfold campus
Participants	26
Organizer	Kaiying Wang

Workshop highlights

PROGRAM

Thursday - JUNE 5 th	
9:00 – 9:10	Opening Remarks <i>Mr. Marius Stian Tannum, Institute Leader, USN-IMS (University of South-Eastern Norway)</i>
9:10 – 9:20	Introduction to NorFab IMS Labs <i>Mr. Ole Henrik Gusland, NorFab Lab Manager, USN-IMS</i>
9:20 – 9:40	Introduction to the NETPORE COST Action <i>Lluís F. Marsal – COST Chair</i>
9:40 – 10:00	Anton Fikai <i>POLITEHNICA București National University for Science and Technology Bucharest, Romania</i>
10:00 – 10:20	Christos Trapalis <i>NCSR DEMOKRITOS AGIA PARASKEVI, Greece</i>
10:20 – 10:40	Aurélien Viterisi

	<i>Centre National de la Recherche Scientifique PAU, France</i>
	COFFEE BREAK & NETWORKING
11:00 – 11:20	Nefeli Lagopati <i>National and Kapodistrian University of Athens, Athens, Greece</i>
11:20 – 11:40	Lluís F. Marsal <i>Universitat Rovira i Virgili (Spain)</i>
11:40 – 12:00	Frédérique Cunin <i>Centre National de la Recherche Scientifique, Montpellier, France</i>
LUNCH TIME	
13:00 – 13:30	Lars Frank <i>BioMEMS Research Group, USN-IMS</i>
13:30 – 13:50	Kim Robert Gustavsen & Kaiying Wang <i>Universitetet i Sorost-norge, Borre, Norway</i>
13:50 – 14:10	Akash Bachhuka <i>Fundacio Privada Institut Catala D'investigacio Quimica, Tarragona, Spain</i>
14:10 – 14:30	Santiago Gómez-Ruiz <i>Universidad Rey Juan Carlos, Móstoles, Spain</i>
14:30 – 14:50	Pai Lu <i>University of South-Eastern Norway, Horten, Norway</i>
	COFFEE BREAK & NETWORKING
15:20 – 15:40	Paula Ferreira

	<i>University of Aveiro, Aveiro, Portugal</i>
15:40 – 16:00	Narcis Duteanu <i>Universitatea Politehnica Timisoara, Timisoara, Romania</i>
16:00 – 16:20	Osman Urper <i>University of South-Eastern Norway, Horten, Norway</i>
19:30 - SOCIAL DINNER	
Friday - June 6th	
9:00 – 11:30	NETPORE Roadmap, future Plans, collaborations & Additional Presentation
11:30	Closing Remarks
END OF THE WORKSHOP	

Visual Recap



6. NETPORE Industry Workshop 3 – Lisbon (Portugal)

Date	02/07/2025 – 03/07/2025
Location	Congress Center of Instituto Superior Técnico, Lisbon, Portugal
Participants	37
Organizer	Paula Ferreira

Workshop highlights

NetPore invited Industry Representatives that are currently involved in the network. The forementioned participants are listed below:

- Frederico Maia (SMALLMATEK)
- Kari Koski (BENEQ)
- Pietro Agola (NOVAC S.R.L.)



Scheme 4. Participants' Industry logotypes.

The 3rd Industry Workshop was co-located with Materials 2025 in Lisbon in a parallel thematic session. In addition all participants were invited to participate at the conference. Lluís F. Marsal was also invited to give a talk in a thematic session and used it to disseminate the Action <https://congressomaterials.pt/2025/programme>.

In addition, NetPore participate in the conference with a big exhibitor hosting the participating companies

PROGRAM

Wednesday, 2 July (Room 5)

09:00 – 09:10	Welcome and Opening Remarks
09:10 – 09:30	Lluís F. Marsal, Univeristat Rovira i Virgili, Spain– Introduction to the NETPORE COST Action
09:30 – 09:55	Frederico Maia, SMALLMATEK - Small Materials and Technologies, Lda, Portugal - Nanostructured materials for immobilization of active compounds
09:55 – 10:20	Kari Koshi, BENEQ, Finland - From Fundamental Research to Industrial Applications of Atomic Layer Deposition
10:20 – 11:00	Coffee Break & Networking
11:00 – 11:25	Pietro Agola, NOVAC S.R.L., Italy - Optimization and scale-up of activated carbon-based supercapacitors for automotive applications
11:30 – 12:00	Lluís F. Marsal, Univeristat Rovira i Virgili, Spain – Photonic Architectures Based on Nanoporous Anodic Alumina for Enhanced Light–Matter Interaction and Optical Biosensing (Room 3 - IL15)
12:05 – 12:30	Moisés Pinto, Instituto Superior Técnico, Universidade de Lisboa, Portugal
12:30 – 12:55	João Rocha, University of Aveiro, CICECO, Portugal - From Bench-to- Bedside: Microporous Sodium Zirconium Silicate for Treating Hyperkalemia
13:00 – 14:30	Lunch Break & Networking
14:30 – 14:50	Industry Engagement Roundtable: Bridging Research and Application Lluís Marsal, Frederico Maia, Kari Koshi, Pietro Agola, Moisés Pinto, João Rocha
14:50 – 15:10	Mirtha Lourenço, University of Aveiro, CICECO, Portugal - Enhancing CO ₂ Capture via Microstructural Tuning of N-Doped Biochar
15:10 – 15:30	Arlete Apolinário, University of Porto, Faculty of Sciences, Portugal - Advanced nanostructured oxide semiconductors for photoelectrochemical solar water splitting and green hydrogen
15:30 – 15:50	Anton Ficai, University POLITEHNICA of Bucharest, Romania - Functional Magnetic Nanoparticles for Biomedical Applications

- 15:50 – 16:10** | Cláudia Nunes, University of Aveiro, CICECO, Portugal - Chitosan- Based Scaffolds Targeting Bone Regeneration and Cancer Therapy
- 16:30 – 17:00** | Coffee Break & Networking
- 17:00 – 17:20** | Nefeli Lagopati, National and Kapodistrian University of Athens, Greece
- 17:20 – 17:40** | Hatice Duran, TOBB University of Economics and Technology, Turkey
- 17:40 – 18:00** | Malgorzata Norek, Military University of Technology, Poland - Photonic materials based on porous anodic alumina
- 18:00 – 18:20** | Martina Corsi, University of Pisa, Portugal - Real-Time Monitoring of Diagnostic Markers Using Implantable, Biodegradable Chemical Sensors with High Temporal and Spatial Precision
- 20:00** | Conference Dinner

Thursday, 3 July

- 09:00 – 11:30** | NETPORE Roadmap and Future Plans
- 11:30** | Closing Remarks

Visual Recap





7. CG Meeting 4 – Palma de Mallorca (Spain)

Date	21/07/2025
Location	Universitat de les Illes Balears - «Sa Riera» building (Spain)
Participants	6
Organizer	Lluís Marsal

Meeting highlights

- Review of new WG applications: 14
- Leftover relocation from Workshops (Horten and Lisbon).
- Discussion about NETPORE Conference: minor organizational details and budget.

Decisions

- ✓ WG applications were approved.
- ✓ Extra budget from the Workshops relocated to pay a set amount to trainees.
- ✓ The leftovers that will be automatically derived to the last event (NETPORE Conference) will be mainly used to increase the number of participants.

8. 4th Summer Training School – Palma de Mallorca (Spain)

Date	21/07/2025 – 24/07/2025
Location	Universitat de les Illes Balears - «Sa Riera» building (Spain)
Participants	31
Organizer	Rodrigo Picos & Lluís F. Marsal

School highlights

All the details related to the Training School are described in the Training School Report published in NETPORE Website. For more information visit <https://netpore.eu/NTP/usdoc.php>.

PROGRAM

21 July		22 July	23 July	24 July
9h 30		Dr Nefeli Lagopati	Dr Salvatore Surdo	Dr Narcis Duțeanu
10h 30		Coffee		
11h 00		Dr Paula Ferreira	Dr Vicente Torres-Costa	Dr. Joan Cerdà
12h 00		Lunch		
14h 00	Welcome			
14h 30	Dr Aurelien Viterisi	Dr Nikola Ž. Knežević	Dr Stéphane Hocquet	Free Time - Sun and fun
15h 30				
	Coffee			
16h 00	Dr Lluís Marsal	Ph.D. Pitch	Ph.D. Pitch	
17h 00	Break			
17h 30	Mr Theo Zacharis			
18h 00				
19h 00	Social Dinner At Training School			

9. CG Meeting 5 (virtual)

Date	05/09/2025
Location	Online (Teams)
Participants	8
Organizer	Lluís Marsal

Meeting highlights

- Review of new WG applications: 1 last application.
- Revision of the budget status.
- Last points and details of the NETPORE Conference.
- European Ceramics Society (ECerS) Grants for Students and Keynote speakers and poster awards.

Decisions

- ✓ New last application to WGs has been approved
- ✓ The leftovers will be relocated to pay a higher number of participants to attend the conference.
- ✓ The DA to pay the conference participants expenses has been upgraded to the maximum.
- ✓ STSM participants have been invited to attend the conference paying their expenses.
- ✓ In case of non-spent budget the GHM will distribute it to pay some travel expenses. General participants up to a maximum of 400 EUR and Keynotes Speakers up to 1500 EUR.
- ✓ ECerS grant call conditions and awards have been accepted.

10. NETPORE Conference – Tarragona (Spain)

Date	16/09/2025 – 18/09/2025
Location	H10 Imperial Tarraco, Tarragona (Spain)
Participants	93
Organizer	Lluís Marsal

Conference highlights

CONFERENCE WEBSITE

<https://netpore2025.eu/2025/index.php>

For more detailed information about NETPORE Conference 2025, please visit the conference website linked above.

PARTICIPATION DETAILS

21 Keynotes & Invited Speakers

21 Oral contributions

35 posters

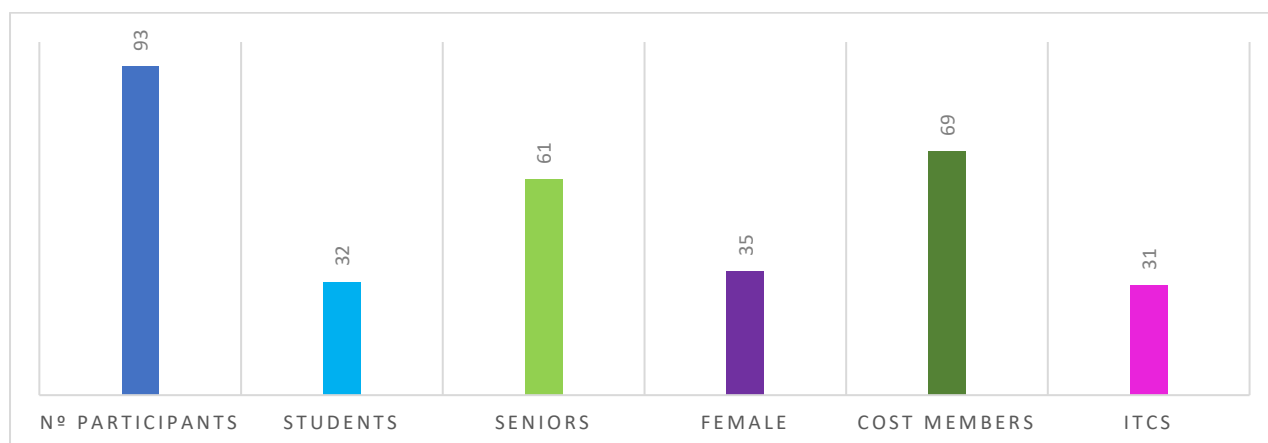


Figure 2. NETPORE Conference participation statistics.

ECerS GRANTS & POSTER AWARDS



The **Belgian Ceramic Research Centre** provides high-quality technological support to industrial partners, helping them to stay up-to-date with the latest innovations and advancements in the fields of ceramics, refractory materials, and glass.

The centre is composed of the INISMa, CRIBC, and INS, which together form a research and testing hub for these materials.



The **JECS Trust** was formally set up in December 2007 to oversee the expenditure of funds passed on to the European Ceramic Society (ECerS) by the Society's Journal and by its publisher, Elsevier.

In its allocation of the Trust's resources, the Trust Council aims :

To enable the European Ceramic Societies to engage in a broad range of activities for the benefit of its membership.

To strengthen research and teaching in Europe within the subject of ceramics.

To maintain and build on the current strong position of the Journals.

Thanks to the **European Ceramic Society (ECerS)** we could offer several grants (up to 500€ per participant) for PhD Students and Young Researchers to attend the NETPORE Conference, The grant covers accommodation and travel expenses (not registration fee). 9 Students have been awarded.

ECerS also support the POSTERS AWARDS for the best 3 posters. The winners of the prices are listed below.

1	Arlete Apolinario (Universidade do Porto, Portugal) Poster N°12 <i>Flexible Photoanodes Based on Hematite Nanoparticles for Solar Water Splitting</i>	400 EUR
2	Clara Twiehaus (Universität Osnabrück, Germany) Poster N°16 <i>Anodization of porous anodic alumina oxide membranes with phosphonic acid</i>	300 EUR
3	Eunyoung Jeon (VN Co.; Ltd., South Korea) Poster N°5 <i>Enhanced Anti-migration Performance of Adhesive Stents via Nanostructure Interlocking Interfaces</i>	200 EUR

Visual Recap



