MONDAY, SEPTEMBER 9, 2024

Congress hall

8:30 **Opening ceremony**

Luboš Novák, Honorary Chairman
Enrico Drioli, Honorary Chairman
Pavel Izák, Head of Scientific Committee
Elena Tocci, EMS President

9:00–10:00 **Plenary session**

Chairs: Elena Tocci (Italy), Pavel Izák (Czechia)

9:00 PL-1

Advanced membranes with subnanosized channels for molecular separation
W. Jin (China)

10:00–10:30 **Coffee break**

10:30–12:30 **Modelling and simulation in membrane science and engineering | T3**

Chair: E. Tocci (Italy)

10:30 MOD-OL-1

Impact of ionic strength and surface charge on ceramic membrane fouling by oil-in-water emulsions: a quantitative analysis using DLVO and XDLVO model
G. Qin, B. Tanis, L. Rietveld, B. Heijman (Netherlands)

10:50 MOD-OL-2

MD simulation study on gas permeation properties in the multilayer membrane models
Y. Seo, N.Y. Kwon, J.H. Lee, C.H. Park (South Korea)

11:10 MOD-OL-3

Flow and process modelling of an MCDI for selective desalination
D. Schödel, J. Kiene, L. Schmidtgen, H. Mehdipour, M. Haghshenasfard, H. Rosentreter, A. Lerch (Germany)

11:30 MOD-OL-4

Closed circuit reverse osmosis for drinking water production: pilot-scale operation and model development
H. Lozie, P. Cauwenberg, R. Van Gorp, E. Cornelissen, **A. D'haese** (Belgium)

11:50 MOD-OL-5

Membrane contactors: a molecular view

E. Tocci (Italy)

12:10 MOD-OL-6

Exploring physical aging in PIM-1 using molecular dynamics

M. Balcik, W. Ogieglo, Y. Wang, I. Pinnau (Saudi Arabia)

12:30–14:00 **Lunch**

17:00–18:00 **Panel discussion**
Water treatment

This panel will explore the role of membrane processes in addressing water scarcity through desalination, wastewater treatment, and Zero Liquid Discharge (ZLD) technologies. Experts will discuss how these technologies can recover valuable resources, reduce liquid waste, and maximize water recovery. The discussion will highlight innovative solutions to global water challenges and their potential applications in various industries.

South hall 1A

10:30–12:30 **2D materials (graphene, phosphorene, etc.) | T1**

Chairs: Y. Shen (Switzerland), S. Ashtiani (Czechia)

10:30 2DM-OL-1

Advancing molecular sieving via Å-scale pore tuning in bottom-up graphene synthesis

Y. Shen, C. Van Goethem, K.V. Agrawal (Switzerland)

10:50 2DM-OL-2

Mechanism of piezoelectric responsive graphene-based membranes for simultaneous steam and power generation

W.S. Hung, J.Y. Lai, C.H. Huang (Taiwan)

11:10 2DM-OL-3

Two-Dimensional Magnetic MOFs: A new class of material for fabrication of advanced membrane materials

S. Ashtiani[1], J. Mo[2], M. Dincă[2], K. Friess[1] ([1]Czechia, [2]USA)

11:30 2DM-OL-4

Investigating the potential behind universal 2D carbon-based nanomaterials for gas separation and further membrane applications

D. Gardenö[1,2], J. Wieczorek[2], M. Kaspereit[2], Z. Sofer[1], K. Friess[1] ([1]Czechia, [2]Germany)

11:50 2DM-SOL-1

Rapid synthesis of atomic-thick porous graphene film for gas separation

C. Kocaman, L. Bondaz, M. Rezaei, J. Hao, K.V. Agrawal (Switzerland)

12:00 2DM-SOL-2

Ordered 2D - metal-organic frameworks on porous ceramic supports for membrane separation applications

D.M. Wolf[1,2], E. Antonioli[2], J. Wolter[1], A. Nijmeijer[2], O. Guillon[1], W. Meulenberg[1,2], M.A. Pizzoccaro-Zilamy[1,2] ([1]Germany, [2]Netherlands)

12:10 2DM-SOL-3

Pioneering biofouling resistant PES UF membrane with MnFe2O4/g-C3N4 nanocomposite: Insight into mechanisms and fouling dynamics

Y. Manawi[1], L. Jaber[2], I.W. Almanassra[2], A. AbuShawish[2], A. Chatla[2], I. Ihsanullah[2], M.M. Ali[2], A. Shanableh[2], M.A. Atieh[2] ([1]Qatar, [2]United Arab Emirates)

12:20 2DM-SOL-4

Incorporating ATPS-GO and siloxene into PES-based mixed matrix membranes for enhanced biological samples pre-treatment

B.S. Moore[1], P. López-Porfiri[1], D. Mahalingam[1], J. Chew[1], D. Mattia[1], P. Gorgojo[2], M. Perez-Page[1] ([1]United Kingdom, [2]Spain)

12:30–14:00 **Lunch**

14:00–15:50 Modelling and simulation in membrane science and engineering | T3

Chair: F.D. Martinez Jimenez (Saudi Arabia)

14:00 MOD-OL-7

Three-dimensional model of ion transport in composite membranes: effect of the internal structure

F.D. Martinez Jimenez, S. Cespedes-Zuluaga, B. Blankert, C. Picioreanu (Saudi Arabia)

14:20 MOD-SOL-1

Molecular Dynamics (MD) simulation study of ionomer behaviour in catalyst slurry compositions for high-performance fuel cell MEAs

K. Hyun Woo, H.Y. Kang, J. Jung, S.D. Yim, C.H. Park (South Korea)

14:30 MOD-SOL-2

Elevating RO process simulation: Algebraic water flux equation as a CFD boundary condition

F. Aschmoneit (Denmark)

14:40 MOD-SOL-3

Bipolar electrodialysis for salt splitting: a model in function of salt type and operating conditions to optimize its efficiency

B. Salgues, M. Chauve, A. Gonin (France)

14:50 MOD-OL-8

Three-dimensional modeling of flow, heat and mass transfer in spacer-filled channels in membrane processes

S. Cespedes, F. Ricceri, F. Martinez, B. Blankert, C. Picioreanu (Saudi Arabia)

15:10 MOD-OL-9

Spiegler-Kedem and Pore-Flow based modeling of nanofiltration of textile dyes effluent: comparison and experimental validation

Z. Chafiq Elidrissi[1,2], S. Rode[2], B. Achiou[1], S.A. Younssi[1], M. Oummou[1], B. Belaissaoui[2] ([1]Marocco, [2]France)

15:30 MOD-SOL-4

Harnessing hydrodynamic effects of assemblies of Surface-Patterned TFC membranes and feed spacers to mitigate membrane fouling

A. Mitranescu, M. Patel, I.M.A. ElSherbiny, S. Panglisch, J.E. Drewes (Germany)

15:50–16:20 Coffee break

16:20–18:00 Modelling and simulation in membrane science and engineering | T3

Chair: T. Yuan (United Kingdom)

16:20 MOD-OL-10

Comparative assessment of DCMDCr and AGMDCr for recovering water in Li brines: Modeling industrial application options

H. Estay, K. Pérez, D. Zamora, C. Bustamante, E. Troncoso, S. Díaz-Quezada (Chile)

16:40 MOD-OL-11

Prediction of permeability of binary gas mixtures in a glassy polyetherimide in presence of specific interactions based upon self-consistent NETGP-NRHB-DM

A. Baldanza, C. Brondi, V. Loianno, G. Mensitieri, G. Scherillo (Italy)

17:00 MOD-OL-12

Gas separation through polymer membranes: from both Equilibrium and NonEquilibrium Molecular Simulations

T. Yuan[1], R. Giro[2], M.B. Steinerm[2], H. Hsu[3], L. Sarkisov[1] ([1]United Kingdom, [2]Brazil, [3]USA)

17:20 MOD-SOL-5

A multiparameter model for local filtrate flux and solids concentration distribution in cross-flow membrane filtration of colloidal suspensions

H. Gholamian, M. Loginov, G. Gésan-Guiziou (France)

17:30 MOD-SOL-6

Data-driven and model-based systems engineering for sustainable nanofiltration processes

A.K. Beke, G. Ignacz, G. Szekely (Saudi Arabia)

17:40 MOD-SOL-7

Enhanced filtration in spiral-wound membrane modules via chaotic advection induced by engineered spacers

J.E. Park, **T.G. Kang** (South Korea)

17:50 MOD-SOL-8

Coupling speciation and transport models to assess the performance of nanofiltration separation of a hydrometallurgical acid leachate

T. Porqueddu, B. Laubie, A. Szymczyk, M.O. Simonnot (France)

South hall 1B

10:30–12:30 Mass transport in membranes | T3

Chairs: G. Belfort (USA), V. Freger (Israel)

10:30 TRANS-KL-1

Design and synthesis of polymer membranes based on theoretical principles

S. Karla, M. Sorci, J. Plawsky, **G. Belfort** (USA)

11:10 TRANS-OL-1

Directional water transport in dense asymmetric membranes

L. Grillo, C. Weder (Switzerland)

11:30 TRANS-OL-2

Modeling ions in charged membranes: Berrum association vs. Manning condensation

A. Oren, O. Nir, **V. Freger** (Israel)

11:50 TRANS-OL-3

Diffusion and solubility study for gas transport in ionic liquid-based supported liquid membranes

P. Lopez-Porfiri[1], P. Gavagni[2], M.C. Ferrari[1], M. Perez-Page[1] ([1]United Kingdom, [2]Italy)

12:10 TRANS-SOL-1

Case-specific mass transfer correlations as a resource for concentration polarization mitigation and fouling prevention

M.N. de Pinho[1], A. Giacobbo[1,2], A.M. Bernardes[2] ([1]Portugal, [2]Brazil)

12:20 TRANS-SOL-2

EIS measurements for ion transport in ion-exchange membrane systems

K.L. Chuang, I. Schmueser, M.C. Ferrari (United Kingdom)

12:30–14:00 Lunch

14:00–14:40 Mass transport in membranes | T3

Chair: V. Loianno (Italy)

14:00 TRANS-OL-4

Unveiling the competitive diffusion of binary gas mixtures in polymers: the case of carbon dioxide and alkanes in nanoporous-crystalline polyphenylene oxide

V. Loianno, G. Guerra, B. Nagendra, G. Mensitieri, P. Musto (Italy)

14:20 TRANS-SOL-3

Investigation of silicone molecules migration through a PDMS membrane (shell) for breast implant applications

Z. Adaïdi, J.P. Méricq, V. Bonniol, J. Cartier, C. Charmette, D. Bouyer (France)

14:30 TRANS-SOL-4

New possibilities for membrane characterization arising from monitoring of pressure decay in time-lag experiments

Z. Cao, P. Leszcynski, H. Wu, J. Thibault, **B. Kruczek** (Canada)

14:40–15:50 Membranes in wastewater treatment | T4

Chair: V. Loianno (Italy)

14:40 WWT-SOL-1

The effect of biomass properties on membrane biofouling in a mesophilic anaerobic membrane bioreactor treating low-strength domestic wastewater

M. Shental-Isaacs, R. Biton, M. Zaiden, M. Herzberg (Israel)

14:50 WWT-OL-1

Metal removal from industrial effluents by membrane filtration

E. Myotte, Y. Wyart, S. Berthelot, P. Moulin (France)

15:10 WWT-OL-2

Recycling of wastewater from the municipal WWTP using membrane technologies

A. Kukučková, L. Báborská, J. Lev, M. Holba, M. Bittner, L. Bláha, L. Bláhová, L. Matějů (Czechia)

15:30 WWT-SOL-2

Application of Integrated Permeate Channel (IPC) technology in direct filtration of tannery effluent

A. Sharma[1], S. Van Ermen[2], P. Bose[1] ([1]India, [2]Belgium)

15:40 WWT-SOL-3

Concept for an automated fouling simulation platform with continuous OCT imaging of 18 stirrer cells to monitor membrane biofouling effects on antibiotic resistance gene removal

A. Leon, R. Starke, M. Wagner, U. Klümper, K. Kerst, T. Berendonk, A. Lerch (Germany)

15:50–16:20 Coffee break

16:20–18:00 Membranes in wastewater treatment | T4

Chair: R. Kasher (Israel)

16:20 WWT-OL-3

Integrated valorization of industrial effluents through membrane processes

A. Karanasiou, C. Tsaridou, K. Plakas, S. Patsios, D. Sioutopoulos, M. Kostoglou, A. Karabelas (Greece)

16:40 WWT-OL-4

Experience with membrane technologies at ENVI-PUR company

R. Vojtěchovský, D. Vilím, M. Maršík, J. Křivánková (Czechia)

17:00 WWT-KL-1

Systematic alteration of Membrane's Charge–Hydrophilicity for enhanced carbamazepine removal and reduced scaling during municipal wastewater treatment

B. Kelali Desta[1], K. Rathinam[1], A. Modi[1], Y. Oren[1], D. Schwahn[2], **R. Kasher**[1] ([1]Israel, [2]Germany)

17:40 WWT-SOL-4

Treatment options for acidic wastewater with high salinity by electrodialysis

J. Filák, T. Kotala, A. Valigůrová, S. Heviánková (Czechia)

17:50 WWT-SOL-5

Inorganic photocatalytic membrane reactor for municipal wastewater treatment

V. Cozzolino, G. Coppola, S. Candamano, S. Chakraborty, V. Calabró, C. Algieri (Italy)

South hall 2A

10:30–12:30 Membrane fouling, biofouling, scaling, ageing, cleaning and maintenance | T3

Chairs: M.K. Jørgensen (Denmark), C. Arnusch (Israel)

10:30 FOUL-OL-1

On-line characterization of membrane fouling by 3ω-sensing

M.K. Jørgensen, A.R. Kjul, M.L. Christensen, J.D. Bendtsen (Denmark)

10:50 FOUL-OL-2

Characterization of organic and inorganic fouling in membrane filtration by 3ω sensing

M. Tavakolmoghadam, A. Ræbild Kjul, M. Lykkegaard Christensen, J. Dimon Bendtsen, M.K. Jørgensen (Denmark)

11:10 FOUL-OL-3

Investigation of cake layer formation during microfiltration of skim milk using optical coherence tomography

F. Mardal[1], B.R. Parjikolaei[1], R.G.H. Lammertink[2], M. Corredig[1] ([1]Denmark, [2]Netherlands)

11:30 FOUL-OL-4

Microscale insights into Deep Bed Filtration: The role of surface roughness

A. Mertens, K. Davaanyam, S. Brosch, C. Polifka, A. Kalde, J. Linkhorst, M. Wessling (Germany)

11:50 FOUL-SOL-1

Micro-nano bubbles as potential cleaning strategies for seawater reverse osmosis biofouling

D.S. Alvarez Sosa[1], A. Alpatova[1], D. Ybyraiymkul[1], K. Choon Ng[1], N. Ghaffour[1], J.S. Vrouwenvelder[1,2], N. Farhat[1] ([1]Saudi Arabia, [2]Netherlands)

12:00 FOUL-SOL-2

Antibacterial laser-induced graphene composite materials for membrane processes and water treatment

C. Arnusch (Israel)

12:10 FOUL-SOL-3

Methods of surface analyses for reverse osmosis membranes to determine damages and membrane fouling

F. Blauth, K. Koenen, B. Schiemann (Germany)

12:20 FOUL-SOL-4

In-situ monitoring and quantification of scaling on electrodialysis membranes via optical coherence tomography

M. Aliaskari, H. Horn, F. Saravia (Germany)

12:30–14:00 Lunch

14:20–15:50 Membrane fouling, biofouling, scaling, ageing, cleaning and maintenance | T3

Chairs: A. Ronen (Israel), T. Malkoske (Germany)

14:20 FOUL-SOL-5

Impact of tofu whey pre-concentration on the extraction of protein by a combination of electrodialytic processes and membrane fouling investigation

R. Deschenes Gagnon[1], M.È. Langevin[2], F. Lutin[2], L. Bazinet[1] (Canada, France)

14:30 FOUL-SOL-6

Effect of salinity fluctuation on biofouling in batch reverse osmosis

Y. Ekowati, T.W. Seviour, L.O. Villacorte, V.A. Yangali-Quintanilla, B. Højris (Denmark)

14:40 FOUL-SOL-7

Optimal control backwash in a submerged membrane bioreactor

F. Ellouze[1], N. Kalboussi[1], A. Rapaport[2], J. Harmand[2], N.B. Amar[1] ([1]Tunisia, [2]France)

14:50 FOUL-OL-5

Advanced tertiary wastewater treatment using electrically conducting membrane with altering potential: scaling and biofouling mitigation

Z. Cheng[1,2], S. Qi[1], M. Yang[1], R.B. Efraim[1], H. Yuan[2], W. Zhang[2], R. Bernstein[1], **A. Ronen**[1] ([1]Israel, [2]USA)

15:10 FOUL-OL-6

In-situ investigation of micro-nano plastics fouling behaviour in ultrafiltration membranes by means of optical coherence tomography

A. Pompa Pernía[1], A. Aleman[2], J. Landaburu-Aquirre[1], S. Molina[1], K. Kerst[2], A. Lerch[2] ([1]Spain, [2]Germany)

15:30 FOUL-OL-7

Complex calcium-organic matter fouling in nanofiltration: Insights from synchrotron-based X-ray techniques

T. Malkoske[1], Y.H. Cai[1], S.E. Bone[2], A.I. Schäfer[1] ([1]Germany, [2]USA)

15:50–16:20 Coffee break

16:20–17:50 Membrane fouling, biofouling, scaling, ageing, cleaning and maintenance | T3

Chairs: N. Franco Clavijo (Saudi Arabia), O. Vopicka (Czechia)

16:20 FOUL-OL-8

New insight in molecular mechanism of membrane stability against fouling

A.S. Embaye, A. Piscioneri, S. Morelli, M. Davoli, R. Derose, S. Santoro, E. Curcio, L. De Bartolo (Italy)

16:40 FOUL-OL-9

In situ scaling observation and localization in RO membranes using optical coherence tomography

N. Franco Clavijo, A. Farinha, G.J. Witkamp, J.S. Vrouwenvelder, B. Blankert (Saudi Arabia)

17:00 FOUL-OL-10

Biofouling development and cleanability in Reverse Osmosis membrane systems: Impact of feed water carbon and phosphorous concentration

N.M. Farhat, L. Javier, J.S. Vrouwenvelder (Saudi Arabia)

17:20 FOUL-OL-11

On Glassy polymers – stiffening, softening, solvent entrapment

T.M. Durďáková[1], Z. Hrdlička[1], M. Král[1], M. Dendisová[1], P.M. Budd[2], W.J. Harrison[2], P. Sysel[1], K. Friess[1], **O. Vopička**[1] ([1]Czechia, [2]United Kingdom)

17:40 FOUL-SOL-8

Chemical cleaning of UF membranes at different temperatures

A. Kamal[1], D. Nygmetova[1], A. Satayeva[1], J. Kim[1], S. Poulopoulos[1], V. Gitis[2], E. Arkhangelsky[1] ([1]Kazakhstan, [2]Israel)

South hall 2B

10:30–12:30 Electromembrane processes (RED, ED, etc.) | T2

Chairs: M. Wessling (Germany), M. Reig (Spain)

10:30 EMP-OL-1

Electromembrane processes in the food industry: Two case studies on generation of green oxidants and salt recovery

T. Mubita, J. van Medevoort, N. Kuipers (Netherlands)

10:50 EMP-OL-2

Boron recovery by electrodialysis with bipolar membranes: operational parameters evaluation

M. Reig, M. Figueira, V. Valderrama (Spain)

11:10 EMP-KL-1

Electro-catalytic membrane reactors with ion exchange membranes for sustainable chemical synthesis

M. Wessling (Germany)

11:50 EMP-SOL-1

Hydrophobic electrically conducting membranes for ammonia recovery coupled with organic fouling mitigation

S. Qi, A. Ronen (Israel)

12:00 EMP-SOL-2

CFD simulation of electrodialysis system using selective ion exchange membranes

S.A. Atyabi, X. Yang (Belgium)

12:10 EMP-SOL-3

Elucidating the role of the electric double layer in the electro-osmotic membrane dewatering of biomass

S. Mehta, Z. Borneman, D.C. Nijmeijer (Netherlands)

12:20 EMP-SOL-4

The use of membrane technologies for calcium chloride recovery

V. Kúdelová, L. Šeda (Czechia)

12:30–14:00 Lunch

14:00–15:50 Electromembrane processes (RED, ED, etc.) | T2

Chairs: Z. Slouka (Czechia), A. Cipollina (Italy)

14:00 EMP-OL-3

Advances in Electrodialysis with bipolar membrane systems: a comparison between two and three compartments operation

A. Filingeri, F. Vicari, A. Culcasi, A. Tamburini, G. Micale, **A. Cipollina** (Italy)

14:20 EMP-SOL-5

The membrane matters in paired electrolysis: Synthesis of 2,5 Furandicarboxylic Acid (FDCA) and 2-Butanone.

T. Harhues, S. Fisher, M. Wessling, R. Keller (Germany)

14:30 EMP-OL-4

Comparison of current collector architectures for Flow-electrode capacitive deionization

N. Köller, M. Perrey, L.K. Brückner, P. Schäfer, S. Werner, C.J. Linnartz, M. Wessling (Germany)

14:50 EMP-OL-5

Membrane use in E-coat

H. Dartmann (Germany)

15:10 EMP-OL-6

Flow Capacitive Deionization: A novel approach for lithium recovery from saline water sources and spent Li-ion batteries

H.M. Saleem, J.G. Crespo, S. Pawlowski (Portugal)

15:30 EMP-OL-7

Transport phenomena at ion-exchange membranes

J. Strnad, V. Láznička, **Z. Slouka** (Czechia)

15:50–16:20 Coffee break

16:20–17:50 Electromembrane processes (RED, ED, etc.) | T2

Chair: K. Nijmeijer (Netherlands)

16:20 EMP-KL-1

Electrospinning: a window of opportunities for membrane development

K. Nijmeijer (Netherlands)

17:00 EMP-OL-8

Electromembrane processes for reducing the environmental impact – history and experiences

F. Toman, L. Novák (Czechia)

17:20 EMP-OL-9

Membrane processes for reducing the environmental impact – opportunities and achievments

M. Bobák, N. Václavíková, L. Šeda, T. Kotala (Czechia)

17:40 EMP-SOL-6

Electrodialysis with bipolar membranes to produce boric acid: comparison of commercial and polyelectrolyte multilayers-coated ion exchange membranes

M. Figueira Alves[1], M. Reig[1], J.L. Cortina[1], M.R. Moradi[2], A. Pihlajamäki[2], C. Valderrama[1] ([1]Spain, [2]Finland)

North hall 2

10:30–12:30 Hybrid, novel membrane processes, new trends in membrane science and technology | T6

Chairs: C. Cordier (France), J. Pirkin-Benameur (France)

10:30 TREND-OL-1

Securing shellfish hatcheries by coupling ultrafiltration and activated carbon

J. Couleaud, **C. Cordier**, V. Bebing, N. Cimetière, A. Fabien, F. Chenier, F. Girardin, S. Giraudet, V. Héquet, P. Le Cloirec, V. Le Razavet, H. Leroy, M. Monnot, C. Stavrakakis, D. Wolbert, P. Moulin (France)

10:50 TREND-OL-2

Grafting zwitterionic polymer brush to ultrafiltration membranes via photo-SI-ATRP using NH2-GOQDs

M. Yang, R. Bernstein (Israel)

11:10 TREND-OL-3

"Hybrid" anion exchange membranes endowed with an ion conducting double gyroid morphology

M. Coronas, J. Cambedouzou, K. Aissou (France)

11:30 TREND-OL-4

Advances in the development of self-oscillating chemically fuelled membranes

J. Pirkin-Benameur, D. Quémener (France)

11:50 TREND-SOL-1

Design of an integrated downstream process to recover and purify caproic acid-rich volatile fatty acids mixture from elongation process broths

J. Godifredo, R. Gironés, C. Colvés, **J. García** (Spain)

12:00 TREND-SOL-2

Pilot-scale demonstration of gas separation membrane processes for carbon dioxide capture in Korea

S.H. Han, J.H. Lim, S. Kim, C.S. Lee, S.Y. Ha, J.G. Yeo, W.S. Chang, S.J. Lee (South Korea)

12:10 TREND-SOL-3

Membrane crystallization by pervaporation for the production and polymorphism control of paracetamol

C. Kalakech, A. Madmar, C. Charcosser, M. Monnot, D. Mangin, É. Gagnière, G. Agusti, S. Lafont, M. Le Hir, D. Baltes, É. Chabanon (France)

12:20 TREND-SOL-4

Electrically modified anion exchange membranes for alkaline membrane water electrolysis

A. Papageorgiou H. Bazyar (Netherlands)

12:30–14:00 Lunch

14:00–14:20 Membrane tissue engineering and regenerative medicine | T5

Chairs: L. Giorno (Italy), D. Qoriati (Taiwan)

14:00 TISENG-OL-5

Peptide-functionalized hollow fiber membranes for selective capture of extracellular vesicles

S. Salerno[1], A. Piscioneri[1], S. Morelli[1], A. Gori[1], E. Provasi[2], P. Gagni[1], L. Barile[2], M. Cretich[1], M. Chiari[1], **L. De Bartolo**[1] ([1]Italy, [2]Switzerland)

14:20–15:50 Hybrid, novel membrane processes, new trends in membrane science and technology | T6

Chair: L. Giorno (Italy), D. Qoriati (Taiwan)

14:20 TREND-SOL-5

Novel ion exchange Hybrid AEM-NF-Membrane for mMCDI process

T. Oddoy, B. Tarpara, K. Schlenstedt, W. Butwilowski, J. Meier-Haack (Germany)

14:30 TREND-SOL-6

Design of novel hybrid membrane architectures based on 2D materials and nanofluidic diodes

M. Moderne, W. Wang, C. Salameh, S. Balme, D. Voiry (France)

14:40 TREND-SOL-7

Continuous biodiesel production with an antifouling polydopamine-modified poly(ether sulfone) membrane immobilized with an alumina-calcium oxide catalyst

E. Gungormus, E. Seker, **S. Alsoy Altinkaya** (Turkey)

14:50 TREND-OL-5

Insightful hybrid microfiltration-membrane distillation process to ameliorate chromium-contaminated groundwater remediation

D. Qoriati, S.J. You (Taiwan)

15:10 TREND-KL-1

Biofunctionalized membranes with recognition and sensing properties for the detection of traces of small-size pollutants

G. Vitola, S. Regina, R. Mazzei, F. Bazzarelli, E. Piacentini, T. Poerio, **L. Giorno** (Italy)

15:50–16:20 **Coffee break**

16:20–17:30 **Hybrid, novel membrane processes, new trends in membrane science and technology | T6**

Chair: T. Kotala (Czechia)

16:20 TREND-OL-6

Separation and purification of polyphenols from canned mandarin production wastewater by ultrafiltration and nanofiltration

P. Alonso Vázquez[1], C. Valle[2], C. Sánchez-Arévalo[1], M.-C. Vincent-Vela[1], B. Cuartas-Uribe[1], M.-A. Bes-Piá[1], S. Álvarez-Blanco[1] ([1]Spain, [2]Italy)

16:40 TREND-OL-7

Electrodialysis processes as a puzzle piece for an industrial sustainability

T. Kotala, H. Fárová (Czechia)

17:00 TREND-OL-8

Design of transdermal drug delivery membranes based on cellulose from banana plant pseudostem and dual functional ionic liquids

R.E.A. Nascimento, J.G. Crespo, L.A. Neves (Portugal)

17:20 TREND-SOL-8

Epoxide-based membranes: an emerging platform for liquid and gas separations

R. Verbeke, D. Van Havere, N. Lenaerts, C. Bogaerts, Z. Bozorgmehr, I. Baert, D. Davenport, M. Bastin, E. Bull, A. El Fadil, I. Vankelecom (Belgium)

Club E

10:30–12:30 **Membranes in biotechnology, bioprocessing, bioseparations, biorefinery, biosensors | T5**

Chairs: M. Moussa (France), Z. Pientka (Czechia)

10:30 BIOTEC-OL-1

Pervaporation coupled to fractional condensation for rational recovery of bio-based ethyl acetate

M. Moussa (France)

10:50 BIOTEC-OL-2

Membranes for microdialysis of clinical samples

Z. Pientka, R. Poreba, P. Tůma (Czechia)

11:10 BIOTEC-OL-3

Membrane chromatography for selective purification of adeno-associated viral vectors

I. Ozyurt, R. Gijsbers, X. Yang (Belgium)

11:30 BIOTEC-OL-4

Assessment of membrane processes for separating glutamate/xylitol mixture produced by microbial hydrolysis of wheat bran

S. Galier, H. Roux-de Balmann (France)

11:50 BIOTEC-SOL-1

Optimizing nanofiltration for kraft black liquor fractionation: pilot scale results and techno-economical evaluation

M. Battestini Vives[1], J. Thuvander[1], A. Arkell[1], X. Xiao[2], G. Rudolph- Schöpping[1], F. Lipnizki[1] ([1]Sweden, [2]China)

12:00 BIOTEC-SOL-2

Design and control optimisation of a bearingless spinfilter for cell culture perfusion processes

L. Beglinger, T. Avsar, J. Biela (Switzerland)

12:10 BIOTEC-SOL-3

Extraction of curcumin and its concentration using organic solvent nanofiltration

M.M. Mavinkurve, Y. Roy (India)

12:20 BIOTEC-SOL-4

Used cooking oil (UCO) to long chain dicarboxylic acid: membrane extraction based downstream processing

P. Mondal, K. De Sitter, A. Buekenhoudt (Belgium)

12:30–14:00 **Lunch**

14:00–15:50 Membranes in biotechnology, bioprocessing, bioseparations, biorefinery, biosensors | T5

Chairs: J. Crespo (Portugal), V. Outram (Sweden)

14:00 BIOTEC-OL-5

Recycling hydroponic solutions via membrane processes

G. Jones, M.R. Roberts, I.C. Dodd, **E. Papaioannou** (United Kingdom)

14:20 BIOTEC-SOL-5

Modelling of density wave propagation in biomembrane

T. Peets, K. Tamm, J. Engelbrecht (Estonia)

14:30 BIOTEC-KL-1

Membranes and proteins: love at first sight?

J. Crespo (Portugal)

15:10 BIOTEC-OL-6

Continuous butanol fermentation with submerged ceramic membranes

V. Outram, F. Lipnizki (Sweden)

15:30 BIOTEC-SOL-6

Coupling enzymatic reaction and separation to recover proteins from lysed *Tetraselmis chui*

A. Poidevin, P. Gillon, A. Riaublanc, E. Couallier (France)

15:40 BIOTEC-SOL-7

High volatile fatty acids concentration from industrial streams via forward osmosis and reverses osmosis

P. Olives, S. Carbonell, J. Margarit, I. Rodriguez-Roda, G. Blandin (Spain)

15:50–16:20 **Coffee break**

16:20–17:50 Membranes in biotechnology, bioprocessing, bioseparations, biorefinery, biosensors | T5

Chairs: R. Onesti (Italy), D. Röcker (Germany)

16:20 BIOTEC-OL-7

Modelling of nerve signals on biomembranes

K. Tamm, T. Peets, J. Engelbrecht (Estonia)

16:40 BIOTEC-OL-8

Electrifying membrane chromatography: modulation of protein electrosorption on electrically conductive membranes

D. Röcker[1], P. Fraga-Garcia[1], S.P. Schwaminger[2], S. Berensmeier[1] ([1]Germany, [2]Austria)

17:00 BIOTEC-OL-9

Integrated membrane process for the isolation of extracellular vesicles from animal and plant sources

R. Onesti[1], S. Giancaterino[1], C. Boi[1,2] ([1]Italy, [2]USA)

17:20 BIOTEC-OL-10

Ultra- and diafiltration for concentration and purification of high-quality food protein extracts from clover grass

A. Kjær Jørgensen, T. Mattsson, S. Gregersen Echers, M. Olsen, P. Lübeck, M. Lübeck, M.K. Jørgensen (Denmark)

17:50–18:00 **Membranes for energy, (microbial) fuel cells, batteries, electrolyzer | T2**

Chairs: R. Onesti (Italy), D. Röcker (Germany)

17:50 ENER-SOL-1

Copper-coordinated PVDF membranes for lithium metal batteries

W.F. Kuan, S.P. Liao (Taiwan)

Terrace 2A

10:30–12:30 **Organic solvent nanofiltration | T2**

Chairs: To be announced in the conference mobile app

10:30 OSN-OL-1

Transfer mechanisms in nanofiltration of hydroformylation complex media by a PDMS membrane in solvent-free or solvent diluted systems.

D.J. Capellán-Batista, U. Thummar, T. Renouard, M. Rabiller-Baudry (France)

10:50 OSN-OL-2

Spiral-wound organic solvent nanofiltration membrane modules for dewaxing solvent recovery

Z. Guoke, Y. Hao, L. Yiqun (China)

11:10 OSN-OL-3

Leaching of SPEEK from PEEK/SPEEK polymer blend membrane for organic solvent ultrafiltration (OSU) with scale up to spiral wound module

S.J. Han, A. Oxley, Z. Jiang, A.G. Livingston (United Kingdom)

11:30 OSN-OL-4

Aligned macrocycle pores in ultrathin films for accurate molecular sieving

Z. Jiang[1], R. Dong[1,4], A.M. Evans[2], N. Biere[3], M.A. Ebrahim[1], S. Li[1], D. Anselmetti[3], W.R. Dichtel[2], A.G. Livingston[1] ([1]United Kingdom, [2]USA, [3]Germany, [4]China)

11:50 OSN-SOL-2

Elucidating the role of interlayer structure in the permeance-selectivity trade-off of ceramic nanofiltration membrane

J. Mo, X. Li, Z. Yang (China)

12:00 OSN-SOL-3

AstraZeneca Sustainability Programme – pilot scale nanofiltration for active pharmaceutical ingredient

I. Amura, M. Smith (United Kingdom)

12:10 OSN-SOL-4

Separation between catalysts and pharmaceutical ingredients via organic solvent nanofiltration on ceramic membranes

A. Magne, **E. Carretier,** L.A. Ubiera Ruiz, T. Clair, P. Moulin (France)

12:20 OSN-SOL-5

Enhancing Bio-Oil processing with spirocyclic polytriazole membranes

B. Payero, W.J. Jang, V. Perez, R. Lively, M.G. Finn (USA)

12:30–14:00 **Lunch**

14:00–15:50 Organic solvent nanofiltration | T2

Chairs: R. Hosseinabadi (Belgium), V. Perez (USA)

14:00 OSN-OL-5

Crosslinked mixed matrix membranes for organic solvent recovery

A.R. Nabais, L.G. Peeva, A.G. Livingston (United Kingdom)

14:20 OSN-SOL-6

Solvent-targeted plastics recycling using ceramic membranes: life in plastic, not fantastic!

E. Pakkaner, P. Vandezande (Belgium)

14:30 OSN-OL-6

The effect of solution casting temperature on performance of crosslinked polyvinylidene difluoride solvent resistant nanofiltration membranes

S. Rezaei Hosseinabadi, A.S. Van Nevel, A.Muralidhar Shenoy, S.Caspers, L.A.J. Rutgeerts, I.F.J. Vankelecom (Belgium)

14:50 OSN-OL-7

Organic solvent nanofiltration on regenerated cellulose membranes: a separation for dendrimers and dendrimers for separation

A. Krupková, R. Petrychkovych, M. Müllerová, A. Edr, M. Konhefr, T. Strašák (Czechia)

15:10 OSN-OL-8

Combating plasticization in polytriazole membranes used for OSRO separations via solid-state photochemical cross-linking

V. Perez, Y. Lee, A. Gomez, R. Lively, M.G. Finn (USA)

15:30 OSN-SOL-7

Membrane conditioning: from aqueous to solvent-resistant nanofiltration

S. Van Buggenhout, L. Boone, I.F.J. Vankelecom (Belgium)

15:40 OSN-SOL-8

Defect-engineered TpPa membranes for organic solvent nanofiltration

S. Wu, J.H. Qiu, C.Y. Tang (China)

15:50–16:20 **Coffee break**

16:20–18:00 Organic solvent nanofiltration | T2

Chair: A. Oxley (United Kingdom)

16:20 OSN-OL-9

Effect of polymer molecular weight on the long-term process stability of crosslinked polybenzimidazole (PBI) membranes

A. Oxley, A.G. Livingston (United Kingdom)

16:40 OSN-OL-10

Organic solvent nanofiltration enables chemical processes

T. Bohn, V. Koleva, F. Gluth (Germany)

17:00 OSN-OL-11

Dynamic covalent bonds for fabrication of recyclable OSN membranes

J. Poniatowska, Z. Borneman, K. Nijmeijer (Netherlands)

17:20 OSN-OL-12

Organic solvent nanofiltration in industry

R. Wilmshöfer, M.S. Haverkamp (Germany)

17:40 OSN-SOL-9

Preparation of SRNF XL-PI membranes using dimethyl isosorbide and gamma-valerolactone as Green Solvents

S. Swarna, L. Sevenhans, S.R. Hosseinabadi, L.A.J. Rutgeerts, I.F.J. Vankelecom (Belgium)

17:50 OSN-SOL-10

Solvent resistant membrane filtration to bridge the gaps in plastics recycling

Z. Bozorgmehr, S. Rezaei Hosseinabadi, S.R. Swarna, L. Rutgeerts (Belgium)

Club A

10:30–12:30 Membrane materials | T1

Chair: S. Nunes (Saudi Arabia)

10:30 MM-OL-1

Evaluating long-term propylene/propane separation performance of carbon molecular sieve membranes derived from tetraphenylethylene-based ladder polymer of intrinsic microporosity

F. Elahi, K. Hazazi, V. Kumar, M. Balcik, Y. Wang, I. Pinnau (Saudi Arabia)

10:50 MM-OL-2

Advancements in Ni-based nanomembranes: reducing pore size for premix-membrane emulsification

J.M. Lück, D. Jupke, J. Rösler, J.H. Finke, A. Kwade (Germany)

11:10 MM-OL-3

Unit-cell-thick metal-organic frameworks films: scalable synthesis and gas separation application

K.V. Agrawal (Switzerland)

11:30 MM-OL-4

Selective and scalable membrane materials for precise separations

S. Nunes (Saudi Arabia)

11:50 MM-SOL-1

Tailoring membrane architecture via macrocyclic multifunctional building blocks for enhanced gas separation performance

J. Schneider, K. Friess (Czechia)

12:00 MM-SOL-2

Preparation of tubular braided PVDF membranes by dip coating

F. Passaro, **M. Pagliero**, I. Rizzardi, C. Costa, A. Comite (Italy)

12:10 MM-SOL-3

Upcycling waste plastics into membranes: investigating the conversion of waste PVC pipes into support layers for thin-film composite nanofiltration membranes

M.R. Esfahani, A.U. Razzaq (USA)

12:20 MM-SOL-4

Lithium recovery from subsurface brines using novel ion exchange composite materials

T. Erfando[1,2], A.S. Haddad[1], R. Rafati[1] ([1]United Kingdom, [2]Indonesia)

12:30–14:00 Lunch

14:00–16:20 Membranes in drinking water | T4

Chairs: F. Lipnizki (Sweden), J. Wullenweber (Germany)

14:00 DRIN-OL-1

Arsenic removal from water using a new ionic liquid-based membrane

F. Galiano[1], R. Mancuso[1], L. Gauzzelli[1], C.S. Pomelli[1], J. Bundschuh[2], J. Rinklebe[3], S.L. Wang[4], C. Apollaro[1], F. Palumbo[1], C. Chiappe[1], B. Gabriele[1], A. Figoli[1] ([1]Italy, [2]Australia, [3]Germany, [4]Taiwan)

14:20 DRIN-SOL-1

Scale-up of 2D MoS2 coated ceramic nanofiltration for Natural Organic Matter (NOM) removal from drinking water

V. Nayak, A. Briggs, L. Davies, E. McAdam (United Kingdom)

14:30 DRIN-OL-2

Stormwater harvesting with membrane technology: from an idea to an apartment building installation

F. Lipnizki, T. Hey, T. Jephson, H. Aspegren (Sweden)

14:50 DRIN-OL-3

Electro-induced regeneration of membrane adsorbers for natural organic matter (NOM) removal in drinking water treatment

J. Wullenweber, M. Ernst (Germany)

15:10 DRIN-OL-4

Viral retention across scales of low-pressure reverse osmosis for drinking water production

H. Taligrot, S. Wurtzer, M. Monnot, L. Moulin, P. Moulin (France)

15:30 DRIN-SOL-2

Pilot tests with RO membrane filtration for removal of PFAS, DMS and other micropollutants from mineral-rich groundwater

M.S. Quinzanos Lobo, M.J. Hedegaard, M. Rygaard, L. Clausen, J. Muff (Denmark)

15:40 DRIN-SOL-3

Polyketone ultrafiltration membrane fabrication for the drinking water treatment

Y. Liu, J. Sim, G.R. Kim, S.Y. Ka, M. Kim, J.W. Heo, Y.C. Woo (South Korea)

15:50–16:20 Coffee break

16:20–16:40 Membranes in drinking water | T4

Chairs: M. Nunes Kleinberg (Israel), K. Balakrishnan (United Arab Emirates)

16:20 DRIN-OL-5

Preparation of ultrapure water for the pharma industry

M. Klepic, M. Cypris, F. Robek (Czechia)

16:40–18:00 Carbon membranes (formation, modification, characterization) | T1

Chairs: M. Nunes Kleinberg (Israel), K. Balakrishnan (United Arab Emirates)

16:40 BIO-OL-1

Laser-induced graphene (LIG) membranes with different subsurface morphologies for electrically dependent microbial decontamination

M. Nunes Kleinberg[1], C. Thamaraiselvan[1,2], C.D. Powell[1,3], C.J. Arnusch[1] ([1]Israel, [2]India, [3]USA)

17:00 BIO-OL-2

Laser-induced graphene based electroconductive membranes for the micropollutants removal and fouling control

S.P. Singh, N.H. Barhuiya (India)

17:20 BIO-OL-3

Nanostructured carbon membrane reactors – perspectives on reactivity and scalability

H. Balakrishnan, M. Faraz, F. Mumtaz, A. Rashed, H. Arafat, L.F. Dumee (United Arab Emirates)

17:40 BIO-OL-4

Precise olefin/paraffin separations using carbon molecular sieves derived from intrinsically microporous polyimides

T. Puspasari, Y. Wang, B. Ghanem, X. Hu, F. Elahi, N. Wehbe, I. Pinnau (Saudi Arabia)

TUESDAY, SEPTEMBER 10, 2024

South hall 1A

8:30–10:00 **Modelling and simulation in membrane science and engineering | T3**

Chair: T. Deb (France)

8:30 MOD-KL-1

The analytic solution of interfacial concentration with observed rejection ratio during dead-end membrane filtration

A.S. Kim (USA)

9:10 MOD-OL-13

An anticipation of fission gas-driven swelling and permeation behavior in nuclear fuel through mechanistic and data-driven methodologies

T.K. Deb (France)

9:30 MOD-OL-14

Scale-up and process simulation strategies of membrane gas separations based on high performance materials require an in-depth reassessment: Biogas and natural gas upgrading case study

O. Abdul Majid, R. Hreiz, C. Castel. E. Favre (France)

9:50 MOD-SOL-9

Optimization of operation parameters in ultrafiltration

I. Nurjanah, J.J. Lin, X.Y. Sean (Taiwan)

10:00–10:30 **Coffee break**

10:30–12:30 **Modelling and simulation in membrane science and engineering | T3**

Chair: To be announced in the conference mobile app

10:30 MOD-OL-15

Investigating lithium salt membrane crystallization: a molecular dynamics Approach

G. Prenesti, A. Cassano, A. Caravella, E. Tocci (Italy)

10:50 MOD-OL-16

Optimal Layer Distribution and Permeance Ratio in Composite Membranes with layers obeying Real-Power Flux Laws

A. Caravella[1], D. Martinez-Diaz[2], G. Prenesti[1], S. Hara[3], D. Alique[2] ([1]Italy, [2]Spain, [3]Japan)

11:10 MOD-OL-17

Exploring the interactions of nanoporous carbon electrode with its surface modification

P. Rama, K. Ioannidou, R. Dupuis (France)

11:30 MOD-OL-18

Sorption thermodynamics of methanol in glassy polyimides: a multiscale approach combining gravimetric and FT-IR in situ experiments with a statistical thermodynamics theory

G. Scherillo, A. Baldanza, C. Brondi, P. Musto, G. Mensitieri (Italy)

11:50 MOD-OL-19

Molecular simulations as a useful tool for investigating harsh conditions in membrane gas separations: high temperatures, high pressures and hazardous H2S-based gas mixtures

S. Neyertz, N.E. Benes, D. Brown (France)

12:10 MOD-SOL-10

On system identification approaches of nonlinear gas permeation

L. Mrazík (Czechia)

12:20 MOD-SOL-11

Modeling of stripping in hollow fiber membrane contactors, application to removal of dissolved oxygen from water

O. Aljasem Alhmiedy, B. Belaissaoui, S. Rode (France)

12:30–14:00 Lunch

14:00–14:50 Modelling and simulation in membrane science and engineering | T3

Chairs: J. Thibault (Canada), M. Halakarni (Israel)

14:00 MOD-SOL-12

The interplay of surface heterogeneity and pore curvature on the physisorption of CO2-CH4 binary mixtures in mesostructured silica

P. Carta, **M.A. Scorciapino** (Italy)

14:10 MOD-SOL-13

Experimental investigation and mathematical modeling of spiral wound 4040 module performance in osmotically assisited reverse osmosis

M. Turetta[1], A. Bertucco[1], F. Briani[1], N. Michelon[2], J. Vogel[2], X.T. Nguyen[3], E. Barbera[1] ([1]Italy, [2]Denmark, [3]Singapore)

14:20 MOD-SOL-14

Polysulfone based polymer inclusion membrane for multivariate optimisation of norfloxacin monitoring in environmental water samples

K. Maiphetlho, M. Sello, Y. Nuapia, L. Chimuka, **H.L. Richards** (South Africa)

14:30 MOD-OL-20

Impact of the membrane porous support on the estimationof intrinsic membrane properties

Z. Cao, B. Kruczek, **J. Thibault** (Canada)

14:50–16:00 Pre-treatment methods for membrane processes | T3

Chairs: J. Thibault (Canada), M. Halakarni (Israel)

14:50 PRETR-OL-1

Enhancing resource efficiency through synergized phosphorus reclamation for high-water recovery RO effluent desalination

H. Huang[1], R. Liu[1], M.S. Jikmyan[1], S. Lin[2], O. Nir[1], R. Bernstein[1] ([1]Israel, [2]USA)

15:10 PRETR-OL-2

Designed zwitterionic polymer grafted UF brushes membrane for mitigate the fouling in SWRO pre-treatment

M.A. Halakarni, R. Bernstein (Israel)

15:30 PRETR-SOL-1

Digestate fractionation by dynamic membrane filtration coupled with coagulation and flocculation

A. Betancourt Sanchez, G. Nourrit, E. Trouvé, M. Spérandio, C. Guigui (France)

15:40 PRETR-SOL-2

Membrane filtration of anaerobically digested blackwater as a pre-treatment before struvite precipitation

S. Kaykhaii[1], A. Hedström[1], E. Kvarnström[1], M. Gelfgren[1], H. Kjerstadius[1], M.E. Moges[2], I. Herrmann[1] ([1]Sweden, [2]Norway)

15:50 PRETR-SOL-3

The effect of feed pretreatment on the membrane microfiltration process

K. Šmidák, P. Mikulášek (Czechia)

16:00–16:30 Coffee break

16:30–18:20 Polymer, biopolymer membranes (formation, modification, characterization) | T1

Chairs: A. Figoli (Italy), A. Lizée (France)

16:30 BPM-KL-1

Toward the fabrication of green membranes: dream or reality?

A. Figoli (Italy)

17:10 BPM-OL-1

Green solvents for a sustainable fabrication of hollow fiber membranes

L. Greie, L.E. Grüning, A. Ley, M. Leuthold, V. Thom, M. Wessling (Germany)

17:30 BPM-OL-2

Application of machine-learning methods in membrane modification

S. Glass, M. Schmidt, P. Merten, A.A. Latif, K. Fischer, A. Schulze, P. Friederich, V. Filiz (Germany)

17:50 BPM-OL-3

Introduction of the electrokinetic index, a new approach for electrokinetic characterization of membranes with various geometries.

A. Lizée, P. Loulergue, A. Szymczyk (France)

18:10 BPM-SOL-1

Tuning the mechanical and gas transport properties of cellulose nanocrystal films via biodegradable plasticizers

G. Trentini[1], S. Sauro[2], M. Valt[1], M. Scarpa[1], S. Krik[1], L. Petti[1], A. Gaiardo[1] ([1]Italy, [2]Netherlands)

South hall 1B

8:30–10:00 Membranes in wastewater treatment | T4

Chairs: To be announced in the conference mobile app

8:30 WWT-OL-5

Flow-electrode capacitive deionization (FCDI) with microfiltration membranes for water reclamation from highly saline and dye-polluted wastewater

C.J. Linnartz, M. Mohseni, S. Echtermeyer, L. Stüwe, M. Wessling (Germany)

8:50 WWT-OL-6

Innovative management of produced water from the oil & gas industry towards circular economy

S. Adham (Qatar)

9:10 WWT-OL-7

Scale-up of a patterned and vibrating membrane system for efficient pilot scale wastewater treatment

A. Ilyas, D. Davenport, I.F.J. Vankelecom (Belgium)

9:30 WWT-OL-8

Recovery of critical metal ion with electrodialysis and solvent extraction-based membranes: Optimization and process integration

P.M. Ruya, X. Yang (Belgium)

9:50 WWT-SOL-6

Behavior of membrane distillation in the treatment of a diverse range of real and industrial water streams: challenges and future perspectives

L. Craveri, E. Bertozzi, M. Malaguti, M. Frappa, F. Macedonio, A. Figoli, A. Tiraferri (Italy)

10:00–10:30 **Coffee break**

10:30–11:10 Membranes in wastewater treatment | T4

Chairs: L. Šeda (Czechia), J. Bartoň (Czechia)

10:30 WWT-OL-9

Feasibility of hybrid forward osmosis/reverse osmosis process to concentrate nutrients from treated anaerobic digestate effluent

Z. Toloueishiviari, R. Abraham, M. Sartaj, N. Abdehagh, B. Kruczek (Canada)

10:50 WWT-OL-10

Fabrication of pH-responsive nanofiltration membrane utilizing chitosan

E. Choi, S. Jeong (South Korea)

12:30–14:00 **Lunch**

14:00–16:00 Membranes in wastewater treatment | T4

Chair: B. Malczewska (Poland)

14:00 WWT-SOL-7

Experimental study of UF as pretreatment to purify wine lees for the extraction of phenolic compounds

M.J. Reig Valor, A. López Borrell, M.F. López Pérez, S.C. Cardona, J. Lora García (Spain)

14:10 WWT-SOL-8

Long-term performance evaluation of low-concentration TMAH for electronic wastewater reuse

Y. Jeon, A. Jang (South Korea)

14:20 WWT-SOL-9

Influence of inorganic fillers nature on Cr(VI) recovery by polymer inclusion membrane containing Aliquat 336

E. Richard, K. Fatyeyeva, S. Marais (France)

11:10 WWT-OL-9

Sulphates content reduction in industrial wastewater by means of electrodialysis

L. Šeda, R. Halama (Czechia)

14:50 WWT-OL-12

Integration of nanofiltration and crystallization processes for water reclamation from exhausted acidic mine waters

A. Roa, J. López, J.L. Cortina (Spain)

15:10 WWT-OL-13

Combination of ultrafiltration and forward osmosis for microplastics separation and nutrients enrichment of the centrate of anaerobically digested sludge

S. Navajas Valiente, R. Mompó-Curell, M.J. Luján-Facundo, J.A. Mendoza-Roca, M.A. Bes-Piá (Spain)

15:30 WWT-SOL-10

Pilot-scale wastewater treatment using a combined forward and reverse osmosis process in conjunction with biogas production on agricultural sites

N. Schäuble, B. Greisner, D. Tenfelde, J. Hoinkis, M. Graf (Germany)

15:40 WWT-SOL-11

Novel modified PIMs to uptake Copper from water

M. Edhbaiah[1,2], A.B. Foster[1], M. Alshurafa[1,3], P.M. Budd[1] ([1]United Kingdom, [2]Kuwait, [3]Saudi Arabia)

15:50 WWT-SOL-12

Mitigation of tertiary membrane fouling in cold climates: comparison of treatment and fouling mitigation efficiency of inorganic coagulants of tertiary membrane in cold climates

B. Malczewska[1], W. Parker[2] ([1]Poland, [2]Canada)

16:00–16:30 Coffee break

16:30–18:10 Membranes in wastewater treatment | T4

Chair: G. Blandin (Spain)

16:30 WWT-OL-14

XPRIZE Water Scarcity: a call for action on innovative water desalination solutions

H. Atoufi (USA)

16:50 WWT-OL-15

Integration of corncob as bio-adsorbent and membrane filtration for removal of micropollutants from water

M. Altayan, L. Fisher, M. Ulbricht (Germany)

17:10 WWT-OL-16

Gravity-driven ultrafiltration and nanofiltration recycled membranes for tertiary treatment of urban wastewater

B. Zappulla-Sabio, P. Vilardell, I. Alcaráz, R. García-Pacheco, H. Monclús, **G. Blandin** (Spain)

17:30 WWT-OL-17

Membrane distillation: a novel approach for efficient separation and recovery of valuable compounds from anaerobic digestates

M. Aquino, S. Santoro, S. Straface, E. Curcio (Italy)

17:50 WWT-OL-18

Atenolol separation study using two commercially available nanofiltration membranes

O. Anike, J. Cuhorka, P. Mikulášek (Czechia)

South hall 2A

8:30–10:00 Membrane fouling, biofouling, scaling, ageing, cleaning and maintenance | T3

Chair: F. Barquero (Switzerland)

8:30 FOUL-OL-12

The effectiveness of a ceramic based dynamic membrane for mitigating organic fouling: through a comparison of membrane modules and CFD analysis

Y. Kim, A. Jang (South Korea)

8:50 FOUL-OL-13

Enhancing desalination plant efficiency: introducing the membrane Biofilm Formation Rate (mBFR) as a novel indicator for optimizing operation and reducing carbon footprint in SWRO and BWRO systems

Y. Ito[1], **F. Barquero**[2], J.J. Lagref[2] ([1]Japan, [2]Switzerland)

9:10 FOUL-OL-14

Alkaline vs Enzymatic detergents: similitudes and differences in formulation and cleaning efficiency of ultrafiltration membranes fouled by skim milk

M. Rabiller-Baudry, S. Kavugho Mission, L. Le Petit, S. El Morr, A. Prudhomme (France)

9:30 FOUL-SOL-8

Advancing ultrafiltration performance: Direct 3D printing of permeable polyethersulfone feed spacer onto membrane surfaces for enhanced permeation and anti-fouling efficiency

Y. Ibrahim[1], N. Hilal[2] ([1]USA, [2]United Arab Emirates)

9:40 FOUL-SOL-9

On the transient permeability of a foulant layer under a pressure wave

J.A. Epstein, G.Z. Ramon (Israel)

9:50 FOUL-SOL-10

Ultrasound-assisted microfluidic filtration cell to control the clogging in porous media

J. Jambert, O. Liot, X. Jacob, P. Duru, N. Hengl (France)

10:00–10:30 Coffee break

10:30–12:30 Membrane fouling, biofouling, scaling, ageing, cleaning and maintenance | T3

Chairs: M. Ulbricht (Germany), E. Yachnin (Israel)

10:30 FOUL-OL-15

Membrane scaling mitigation by cyclic operation and early scaling detection in inland desalination

M. Futterlieb, S. Panglisch (Germany)

10:50 FOUL-OL-16

Improving the durability of cellulosic membranes in filtration of natural waters and wastewaters using polyelectrolyte coatings

J. Nieminen, A. Liukkonen, A. Pihlajamäki, M. Mänttäri (Finland)

11:10 FOUL-KL-1

Increasing separation performance by reactive coating of membranes: from lab-scale coupons to spiral-wound modules

M. Ulbricht, P. Wünscher, Q. Ke, K. Gebru, F. Blauth (Germany)

11:50 FOUL-SOL-11

Innovative persulfate-based solutions for chemical cleaning of organically-fouled ceramic membrane

S. Kim, C. Park (South Korea)

12:00 FOUL-SOL-12

Electrochemical control of biofouling in electroactive ultrafiltration membrane

U. Misra, K. Jashrapuria, Y. Chouhan, A. Kumar, S. Pratap Singh (India)

12:10 FOUL-SOL-13

Modelling of colloidal fouling in electro-membrane processes

F. Volpe, G. Battaglia, A. Cipollina, A. Tamburini, G. Micale (Italy)

12:20 FOUL-SOL-14

The effect of alternating electric fields on membrane colloidal fouling

E. Yachnin[1], D. Jassby[2], T. Segal-Peretz[1], G.Z. Ramon[1] ([1]Israel, [2]USA)

12:30–14:00 **Lunch**

14:00–16:00 Nanofiltration, reverse osmosis | T2

Chairs: U. Kragl (Germany), E. te Brinke (Netherlands)

14:00 TREND-SOL-15

Exploration of UV-cured polysulfone membrane synthesis via smartcoater roll-to-roll processing

Z. Mofidi, P. Van den Mooter, I.F.J. Vankelecom (Belgium)

14:10 NFRO-SOL-2

Acetone extraction induced piperazine diffusion reaction for regulating thin film composite nanofiltration membrane

J. Wang, Y. Ye, N. Qiu, Z. Qiu, Y. He, F. Liu (China)

14:20 NFRO-SOL-3

Reverse osmosis membrane functionalized with aminated graphene oxide and polydopamine nanospheres plugging for enhanced NDMA rejection and anti-fouling performance

N. Khanzada[1,2], S. Rehman[2], J.A. Kharraz[2], M.U. Farid[2], M. Khatri[1], A. Kyoungjin An[2], N. Hilal[1] ([1]United Arab Emirates, [2]Hong Kong)

14:30 NFRO-KL-1

Nanofiltration in aqueous systems for catalyst separation and downstrem processing

U. Kragl (Germany)

15:10 NFRO-OL-1

Polyelectrolyte multilayer membranes: an experimental review

J.A. Regenspurg, W. Jonkers, M.A. Junker, I. Achterhuis, **E. te Brinke**, W.M. De Vos (Netherlands)

15:30 NFRO-SOL-4

Application of polyamide nanofiltration membranes in removal of clarithromycin from water samples

N. Maravić[1], Z. Šereš[1], J. Šurlan[1], N. Đurišić Mladenović[1], I. Antić[1], J. Živančev[1], C. Brazinha[2], C.F. Galinha[2], J.G. Crespo[2] ([1]Serbia, [2]Portugal)

15:40 NFRO-SOL-5

Arsenic isolation and NaOH recovery using nanofiltration for a zero-waste arsenic remediation scheme

S. Kumar, Y. Roy (India)

15:50 NFRO-SOL-6

Organic matter interplay in chromium^{III} and chromium^{VI} removal with nanofiltration

Y.A. Boussouga, A.I. Schäfer (Germany)

16:00–16:30 **Coffee break**

16:30–18:00 Nanofiltration, reverse osmosis | T2

Chair: J. Chen (United Kingdom)

16:30 NFRO-OL-2

Potential pitfalls in bench scale membrane characterization

B. Blankert[1], R. Das[2], T. Altmann[2], C. Picioreanu[1], J.S. Vrouwenvelder[1] ([1]Saudi Arabia, [2]United Arab Emirates)

16:50 NFRO-OL-3

Integrating nanofiltration processes in the hydrometallurgical copper industry for acid recovery

J. Lopez, D. Rodríguez-Jiménez, M. Fernández de Labastida, J.L. Cortina (Spain)

17:10 NFRO-OL-4

Real-time fluid dynamics analysis for surface-patterned thin-film composite membranes in spacerfilled channel using particle image velocimetry

M. Patel, A. Mitranescu, J.E. Drewes, S. Panglisch, I.M.A. ElSherbiny (Germany)

17:30 NFRO-OL-5

Effect of polyelectrolytes and soaking time on stability of layer-by-layer nanofiltration membrane in highly saline solutions

J. Chen[1], B. Hu[1], B. Tokay[2], T. He[1] ([1]China, [2]United Kingdom)

18:00 NFRO-SOL-7

Exploring the influence of diamine monomers on the desalination performance of polyamide TFC membranes

A. Waheed[1], U. Baig[1], I. Abdulazeez[1], S. Hasan[2], **I. Aljundi**[1] ([1]Saudi Arabia, [2]United Arab Emirates)

18:00–18:20 Membranes for CO_2 capture | T4

Chair: Jiarui Chen (United Kingdom)

18:00 CO2-SOL-1

One step synthesis of copolymers via super-acid catalyzed polymerization for efficient gas separation

A. Nikolopoulou, D. Vroulias, T. Ioannides, **V. Deimede** (Greece)

18:10 CO2-SOL-2

Production and testing of large-scale hollow fiber hybrid facilitated transport membrane modules for CO_2 capture

C. Ruiz, P.A. Buchinger, A.K. Panneerselvam, **S. Janakiram** (Norway)

South hall 2B

8:30–10:00 Electromembrane processes (RED, ED, etc.) | T2

Chairs: A. Siekierka (Poland), X. Yang (Belgium)

8:30 EMP-OL-10

Can we do better than Michelangelo?
H.M. Saif, J.G. Crespo, **S. Pawlowski** (Portugal)

8:50 EMP-OL-11

Design of selective electro-driven membranes for ion resource recovery
X. Yang (Belgium)

9:10 EMP-KL-2

Covalent organic frameworks as an electrode material in capacitive deionization
A. Siekierka (Poland)

9:50 EMP-SOL-7

Antimony recovery from a copper production effluent by membrane electrolysis
B. Garrido[1,2], J. Lara[2], J. Moreno[2], A. Giacobbo[1], E. Pino[2], G. Cifuentes[2], **A.M. Bernardes**[1] ([1]Brazil, [2]Chile)

10:00–10:30 Coffee break

10:30–11:10 Electromembrane processes (RED, ED, etc.) | T2

Chairs: I. Rizzardi (Italy), A.H. Avci (Sweden)

10:30 EMP-OL-12

Conductive reverse electrodialysis for low-salinity waters
A.H. Avci, F. Lipnizki (Sweden)

10:50 EMP-OL-13

Regeneration of acid and alkaline solutions from K_2SO_4 and Na_2SO_4 using bipolar membrane electrodialysis as part of a CO_2 mineralization process
E. Koivisto, B. Hägglund, R. Zevenhoven (Finland)

11:10–12:30 Membrane contactors, membrane condenser, membrane dryer | T2

Chairs: I. Rizzardi (Italy), A. Halil Avci (Sweden)

11:10 CON-OL-1

Recovering ammonia from anaerobic digestion effluent with an anti-fouling janus membrane in a membrane contactor
H.W. Jeon, A. Jang (South Korea)

11:30 CON-OL-2

Enhancing energy resource recovery from anaerobic wastewater through the membrane contactor ozone fusion process

T.H. Kim, A. Jang (South Korea)

11:50 CON-OL-3

Preparation of Janus polypropylene-based membranes for improving the aeration process

I. Rizzardi[1], A. Comite[1], M. Ulbricht[2] ([1]Italy, [2]Germany)

12:10 CON-SOL-1

Further improvements in Lactic Acid Membrane Extraction: introducing deep eutectic solvents for an emulsion-free, non-toxic direct extraction

A. Pérez[1], P. Demmelmayer[2], M. Kienberger[2], W. Riedl[1] ([1]Switzerland, [2]Austria)

12:20 CON-SOL-2

Selective separation and concentration of nutrients and volatile fatty acids from food wastes using electrodialysis and membrane contactor for resource valorization

F. Kotoka, L. Gutierrez, A. Verliefde, E. Cornelissen (Belgium)

12:30–14:00 Lunch

14:00–16:00 Membrane distillation, osmotic distillation, membrane crystallization | T2

Chairs: S. Santoro (Italy), A. Yousefi (Canada)

14:00 MDOD-SOL-1

Impact of oil and surfactant on the membrane distillation and membrane crystallization performance

F. Alessandro, M. Frappa, E. Drioli, F. Macedonio (Italy)

14:10 MDOD-SOL-2

Experimental characterisation and modeling of a Vacuum Multi-effect membrane distillation unit for designing a real application

A. Bueso, R.J. Ramirez, A. Ruiz-Aguirre, J.D. Gil, G. Zaragoza (Spain)

14:20 MDOD-SOL-3

Influence of operating parameters for ammonia recovery using sweep gas membrane distillation

A. Martinez-Triana, T. Neveux, C. Castel, E. Favre (France)

14:30 MDOD-OL-1

Synergistic effect of thermal dewatering by membrane distillation on the perfluoroalkyl and poly-fluoroalkyl substances (PFAS) removal via Electro-Fenton

A. Yousefi, M. Sadrzadeh (Canada)

14:50 MDOD-OL-2

Vivianite formation by membrane-assisted reactive crystallisation for the recovery of phosphate: Nucleation kinetic analysis

R. Jiménez Robles[1], V. Martínez-Soria[1], M. Izquierdo[1], L. Chen[2], E. McAdam[2] ([1]Spain, [2]United Kingdom)

15:10 MDOD-OL-3

Plasmonic-enhanced solar-driven membrane crystallization for mineral extraction from brine

S. Santoro, M. Aquino, E. Curcio (Italy)

15:30 MDOD-SOL-4

Treatment of highly saline waters by membrane distillation using functionalized ceramic membranes

M. Weyd, M. Uthleb, T. Hoyer, H. Richter, M. Stahn, I. Voigt (Germany)

15:40 MDOD-SOL-5

Innovative coated PVDF membranes for MD applications

M. Frappa, F. Galiano, F. Russo, A. Figoli, E. Drioli, F. Macedonio (Italy)

15:50 MDOD-SOL-6

Reactive transport modeling of wastewater effluent reverse osmosis desalination

M.S. Jikmyan, O. Nir (Israel)

16:00–16:30 Coffee break

16:30–18:20 Membrane distillation, osmotic distillation, membrane crystallization | T2

Chairs: J. Feher (Czechia), R. Ruby-Figueroa (Chile)

16:30 MDOD-OL-4

Recovery of Li_2CO_3 by membrane crystallization with ion-exchange hollow fibers

J. Fehér[1,2], L. Sedlák[2], I. Červeňanský[2], J. Markoš[2] ([1]Czechia, [2]Slovakia)

16:50 MDOD-OL-5

Exploring clay-enhanced PVDF electrospun nanofiber membranes in diverse membrane distillation configurations for desalination efficiency

R. Navarro-Tovar[1], P. Gorgojo[2], P. Martin[1], M. Perez-Page[1], **P. Lopez-Porfiri**[1] ([1]United Kingdom, [2]Spain)

17:10 MDOD-OL-6

Osmotic membrane distillation (OMD): understanding principles and potential applications via modeling and experiments.

M. Morciano, **M. Malaguti**, F. Ricceri, A. Tiraferri, M. Fasano (Italy)

17:30 MDOD-OL-7

Optimization of gas-assisted melt electrospinning (GAME) for the scalable fabrication of membranes used in membrane distillation

R. Sallakhniknezhad, A. Tavakoli[2], S. Bazgir[2], A. Kargari[2], M. Barani[2], A. Tiraferri[1] ([1]Italy, [2]Iran)

17:50 MDOD-OL-8

Assessment of operating conditions in the desalination of simulated SWRO brines by DCMD

C. Venegas, M. Serra, H. Estay, **R. Ruby-Figueroa** (Chile)

18:10 MDOD-SOL-7

Optimization of direct contact membrane distillation for simultaneous recovery of phosphorus and nitrogen from waste streams

E. Bertozzi, L. Craveri, A.N. Tabasian, M. Malaguti, A. Tiraferri (Italy)

North hall 2

8:30–10:00 Hybrid, novel membrane processes, new trends in membrane science and technology | T6

Chair: M.T. Guzman Gutierrez (Norway)

8:30 TREND-OL-10

Photovoltaic driven carrier-facilitated membrane process enables efficient recovery of spent lithium ion batteries with low carbon footprint

B. Wang, Y. Liu, **Y. Zhang** (China)

8:50 TREND-OL-11

Membranes for removal of micro- and nanoplastics from wastewater

M.T. Guzman-Gutierrez, H. Johnsen, S.P. Strand, W. Glomm (Norway)

9:10 TREND-OL-12

An Etalon@Membrane Microfluidic Platform for integrated separation and sensing applications

M. Zhang, A.J. Loeve, H. Bazyar (Netherlands)

9:30 TREND-OL-13

Sustainable power generation from salinity gradients via Pressure Retarded Osmosis (PRO): membrane modifications for improved performance

M. Malankowska, Z. Su, M. Mohammadi Amin, H. Guo, LS. Pedersen, U. Krühne, M. Pinelo (Denmark)

9:50 TREND-SOL-10

Next-gen heterogenous IEMs: the challenge of meaningful improvement

S. Nevyhoštěný, N. Václavíková (Czechia)

10:00–10:30 Coffee break

10:30–12:30 Hybrid, novel membrane processes, new trends in membrane science and technology | T6

Chairs: P. Izák (Czechia), C. Scholes (Australia)

10:30 TREND-KL-1

Separation of racemic mixtures using cyclodextrin derivates in the non-porous membranes

M. Michel[1,2], P. Kasal[1], J. Jindřich[1], **P. Izák**[1] ([1]Czechia, [2]United Kingdom)

11:10 TREND-OL-14

Toxic gas separation through novel membrane mechanisms

C. Scholes (Australia)

11:30 TREND-OL-15

All-in-one unsteady membrane gas separation and compression: an experimental study

M. Lafont, R. Privat, C. Castel, J.N. Jaubert, E. Favre (France)

11:50 TREND-SOL-11

Advancing membranes for membrane emulsification technologies: a journey towards sustainable bio-pesticides and cosmetics

Z. Flanc[1], J. Kujawa [1], W. Kujawski[1], B. Tylkowski[1,2] ([1]Poland, [2]Spain)

12:00 TREND-SOL-12

Protein removal using dicarboxymethyl cellulose in a hybrid adsorption-membrane filtration system

D. Gago, R. Chagas, L.M. Ferreira, I. Coelhoso (Portugal)

12:10 TREND-SOL-13

Photothermal surface heating membrane distillation Using 3D-Printed $Ti_3C_2T_x$ MXene-Based nanocomposite spacer

N. Almarzooqi, S. Hong, P. Verma, A. Shaheen, A. Schiffer, F. AlMarzooqi (United Arab Emirates)

12:20 TREND-SOL-14

Enhancing MTO reaction stability: impact of in-situ water removal using LTA Zeolite Membrane in a fixed bed membrane reactor

M. Nikbakht Fini, R. Sumbharaju, M. Saric (Netherlands)

12:30–14:00 Lunch

14:00–16:00 Membranes for energy, (microbial) fuel cells, batteries, electrolyzer | T2

Chair: A. Hubina (Czechia)

14:00 ENER-SOL-2

Synthesis and characterization of anion exchange membranes based on ionene type polyimides

A. Hubina[1], S. Rogalsky[2], J. Merna[1], J. Hnat[1], K. Bouzek[1] ([1]Czechia, [2]Ukraine)

14:10 ENER-SOL-3

Ultrathin and mechanically robust mesh-reinforced support membranes

M. Cools, I.F.J. Vankelecom (Belgium)

14:20 ENER-SOL-4

Improving cycle lifetime under high current density in alkaline quinone-based redox flow batteries by ion-selective mixed-matrix membranes

W. Liang, E. Ghasemiestahbanati, N.T. Eden, C.M. Doherty, M. Majumder, M.R. Hill (Australia)

14:30 ENER-OL-1

Proton conductive MOF-based mixed matrix membranes for fuel cell applications

G.T. Gebreslassie, V. Pimenta, C. Serre (France)

14:50 ENER-OL-2

High-durable thin film assembled membrane as efficient gas barrier

Y. Choi, J.Y. Lee, S.H. Yu, S.Y. Lee (South Korea)

15:10 ENER-OL-3

Polybenzimidazole based self-reinforced composite membrane using cerium precursor

S.H. Kim, J.Y. Lee, Y.J. Hwang, S.Y. Lee (South Korea)

15:30 ENER-SOL-5

Ultrasound-assembled MEA: ionomer nanostructure and properties

C. Tougne, C. Nayoze-Coynel, A. Morin (France)

15:40 ENER-SOL-6

Advancing Na-air/O_2 battery technology: O_2/O_2- crossover challenge and solid electrolyte development

M. Yahia, N. Ortiz Vitoriano (Spain)

15:50 ENER-SOL-7

Solvent induced swelling of sulfonated polyether ether ketone membrane increases the efficiency of a redox flow battery

A. Lejarazu-Larrañaga, N. Marquínez, E. Sánchez-Díez, F. Jiang (Spain)

16:00–16:30 **Coffee break**

16:30–18:10 Membranes for energy, (microbial) fuel cells, batteries, electrolyzer | T2

Chair: J.M. Haack (Germany)

16:30 ENER-OL-4

Aquivion-based cation electrolyte membrane for advanced solid-state supercapacitors

F. Lufrano[1], M. Thomas[1], A. Brigandì[1], N. Rey-Raap[2], A. Arenillas[2], S. Veleva[3], B. Karamanova[3], A. Stoyanova[3] ([1]Italy, [2]Spain, [3]Bulgaria)

16:50 ENER-OL-5

Structure–property relationship of phosphonium- and imidazolium-based polymerized ionic liquids as anion exchange membranes

E. Fontananova, F. Galiano, R. Mancuso, D. Talarico, G. Di Profio, L. Guazzelli, C.S. Pomelli, B. Gabriele, A. Figoli (Italy)

17:10 ENER-OL-6

Stability and performance of commercial membranes in high-temperature, extreme pH, organic redox flow batteries (RFBs)

C. Van Cauter, Y. Li, S. Van Herck, I. Vankelecom (Belgium)

17:30 ENER-OL-7

Pore-filled anionexchange membranes based on spirocyclic quarternary ammonium groups

D.J. Tränkner, K. Schlenstedt, **J. Meier-Haack** (Germany)

17:50 ENER-OL-8

Constructing low-resistance Ion-conducting membranes based on MOF lattice differences

H. Cao, K. Huang, Z. Xu (China)

Club E

8:30–9:10 Membrane emulsification, membrane nanoprecipitation | T2

Chairs: C. Brazinha (Portugal), Z. Chaliq Elidrissi (France)

8:30 MEMU-OL-1

Membrane nanoprecipitation for polymer coating of inorganic nanoparticles

M.F. Vigile, E. Piacentini, P. Vacca, A. Figoli, L. Giorno (Italy)

8:50 MEMU-OL-2

Challenges and opportunities of various membrane emulsification techniques for sustainable production of nanoemulsions

U. Syed, S. Mondal, J. Crespo, **C. Brazinha** (Portugal)

9:10–10:00 Membranes in gas and vapor separation | T2

Chair: C. Brazinha (Portugal), Z. Chaliq Elidrissi (France)

9:10 MGV-OL-1

Branched-triptycene-based polymers of intrinsic microporosity for use as gas-separation membranes

S. Pang, S. Li, C. Ye, N. McKeown (United Kingdom)

9:30 MGV-OL-2

Synthesis of novel polyimides and their applicability in the preparation of membranes for gas separation

J. Melzerová, K. Iablochkin, M. Bernauer, **V. Fíla** (Czechia)

9:50 MGV-SOL-1

Polymer blend membranes for gas separation: a systematic investigations of material combinations

R. Válek, M. Kout, L. Brožová, Z. Pientka, O. Horký (Czechia)

10:00–10:30 Coffee break

10:30–12:30 Membranes in gas and vapor separation | T2

Chairs: C.G. Bezzu (United Kingdom), M. Carta (United Kingdom)

10:30 MGV-OL-3

Ultrapermeable polymers of intrinsic microporosity based on spirobifluorenes for gas separation membranes

C.G. Bezzu[1], N.B. McKeown[1], M. Carta[1], A. Fuoco[2], J.C. Jansen[2], E. Esposito[2], M. Monteleone[2], M. Longo[2] ([1]United Kingdom, [2]Italy)

10:50 MGV-OL-4

Triptycene based PIMs for gas separation

M. Carta[1], C.G. Bezzu[1], A. Fuoco[2], J.C. Jansen[2], M. Longo[2], M. Vaccaro[2] ([1]United Kingdom, [2]Italy)

11:10 MGV-OL-5

Enhanced gas separation performance (CO_2/CH_4) of thin film nanocomposite membrane based on Pebax and zeolitic imidazolate frameworks

D. Refaat Elsayed, M. Yahia, J. Coronas (Spain)

11:30 MGV-OL-6

Towards the next generation of supported liquid membranes for gas separation processes

H. Kulak, D. Van Havere, N. Lenaerts, R. Verbeke, I.F.J. Vankelecom (Belgium)

11:50 MGV-OL-7

Tailoring the physicochemical properties of the BioMOF-based cellulose acetate MMMs towards the propene/propane separation

P. Hajivand, M. Longo, M. Monteleone, T. Mastropietro, A. Fuoco, E. Esposito, D. Armentano, J.C. Jansen (Italy)

12:10 MGV-SOL-2

Spirobisindane-based membranes for natural gas enrichment

T. Baysal[1], A. Guvensoy-Morkoyun[1], **S. Velioğlu**[1], M.G. Ahunbay[2], S.B. Tantekin-Ersolmaz[1], D. Bezgin[3], V. Ryzhikh[3], A. Kuznetsov[3], A. Alentiev[3] ([1]Turkey, [2]France, [3]Russia)

12:20 MGV-SOL-3

PIM-1 copolymers applications in gas-separation membranes

M. Longo[1], M. Monteleone[1], A. Fuoco[1], E. Esposito[1], S. Pang[2], M.K. Amin[2], C. Ye[2], N.B. Mckeown[2], J.C. Jansen[1] ([1]Italy, [2]United Kingdom)

12:30–14:00 **Lunch**

14:00–16:00 Membranes in gas and vapor separation | T2

Chairs: E. Favre (France), E. Avruscio (Italy)

14:00 MGV-SOL-4

Solvent optimization in the fabrication of polysulfone hollow fiber membrane for air separation

O. Teber, A. Kuban, V. Vatanpour, I. Koyuncu (Turkey)

14:10 MGV-SOL-5

Understanding the influence of non-solvent additives and green solvents on sustainable and scalable synthesis of 6FDA:DAM-DABA polyimides for methane enrichment

A. Shenoy, T. Duplat, I. Vankelecom (Belgium)

14:20 MGV-SOL-6

Highly permeable zeolite membranes for gas separation

L. Yu, J. Hedlund (Sweden)

14:30 MGV-OL-8

Selective H_2 and CO_2 separation using carbon membranes for syngas upgrading

E. Avruscio[1,2], D. Chen[2], L. Lei[2], D.S. Karousos[3], G. Barbieri[1], E.P. Favvas[3], X. He[2,4], A. Brunetti[1] ([1]Italy, [2]China, [3]Greece, [4]Israel)

14:50 MGV-OL-9

Gas diffusion in polymer-based membranes: the role of the energetic and entropic terms

A. Fuoco, C. Rizzuto, M. Longo, M. Monteleone, E. Esposito, E. Tocci, J.C. Jansen (Italy)

15:10 MGV-KL-1

The future of membrane gas separation processes

E. Favre (France)

15:50 MGV-SOL-7

Thermally cross-linked polymeric membranes for enhanced plasticization resistance

J.S. Lee (South Korea)

16:00–16:30 **Coffee break**

16:30–18:20 Membranes in gas and vapor separation | T2

Chairs: P. Stanovsky (Czechia), J.C. Jansen (Italy)

16:30 MGV-OL-10

Structural effects of the polymer-ionic liquid membranes on the organic vapours permeation

P. Stanovský, Z. Petrusová, L. Morávková, P. Izák (Czechia)

16:50 MGV-OL-11

Biogas upgrading by carbon and SAPO-34-membranes

H. Richter, A. Simon, J. Reichert, K. Böttcher, M. Weyd, I. Voigt, U. Lubenau, R. Mothes, J. Zill (Germany)

17:10 MGV-KL-2

Unveiling the importance of diffusion in mixed gas permeability and selectivity

M. Monteleone, M. Longo, P. Hajivand, E. Esposito, A. Fuoco, E. Tocci, C. Rizzuto, **J.C. Jansen** (Italy)

17:50 MGV-OL-12

Novel 6FDA-based coated thin-film composite hollow fiber membranes for hydrofluorocarbons reclamation

S. Gutiérrez-Hernández, S. Rico-Martínez, F. Pardo, C. Álvarez, J.A. Miguel, G. Zarca, A. Urtiaga (Spain)

18:10 MGV-SOL-8

IR nanospectroscopy for correlating morphology and gas permeability of polyether-block-amide copolymer membranes

O. David[1], **M. Etxeberria-Benavides**[1], I.A. Altuna[1], F.J.F. Carretero[1], M. del Mar Diaz De Guereñu Zabarte[1], M. Goikoetxea Larruskain[1], J.J. Flat[2], Q. Pineau[2], R. Hillenbrand[1] ([1]Spain, [2]France)

Terrace 2A

8:30–8:50 Organic solvent nanofiltration | T2

Chairs: H. Xiao (United Kingdom), M. Higa (Japan)

8:30 OSN-OL-13

Homogeneous palladium catalyst recovery/recycling using organic solvent nanofiltration

H. Xiao, W.R.F. Goundry, Y. Feng, S. Karlsson, R. Griffiths (United Kingdom)

8:50–10:00 Membranes for seawater and brackish water desalination | T4

Chairs: H. Xiao (United Kingdom), M. Higa (Japan)

8:50 SEAW-OL-1

Development of high-performance charged mosaic membrane made by ion-track graft polymerization method

M. Higa, H. Yoshida, Y. Kakihana, M. Higa (Japan)

9:10 SEAW-OL-2

Hydrophobic ceramic capillary membranes applied for desalination and oil removal applications

S. Jayakumar, M. Barboiu, S. Cerneaux (France)

9:30 SEAW-OL-3

Impact of chemical attack, drying and compaction on reverse osmosis membranes

B. Zappulla Sabio[1], L. Rio[1,2], R. García-Pacheco[1], L.F. Dumée[3], P. Le-Clech[4], G. Blandin[1] ([1]Spain, [2]France, [3]United Arab Emirates, [4]Australia)

9:50 SEAW-SOL-1

Monovalent ion selective desalination by MCDI for Chloride and Nitrate reduction in groundwater

H. Rosentreter, D. Schödel, A. Lerch (Germany)

10:00–10:30 Coffee break

10:30–12:30 Membranes for seawater and brackish water desalination | T4

Chairs: M.S. Khan (Singapore), M. Monnot (France)

10:30 SEAW-OL-4

Simultaneous solar-driven seawater desalination and oil recovery using Janus MXene/PAN membrane with energy-saving

S. Byun, S. Jeong (South Korea)

10:50 SEAW-OL-5

Osmotic dilution to combine water reuse and desalination to produce safe water at lower cost: a design study

R. Yalamanchili, J.P. Rojas Trigo, I. Rodriguez-Roda, G. Blandin (Spain)

11:10 SEAW-OL-6

Enhancing boron removal efficiency of layered double hydroxides via functionalization with β-cyclodextrin for reverse osmosis applications

M.S. Khan, S.B. Chen (Singapore)

11:30 SEAW-OL-7

Retention by ultrafiltration of norovirus and its surrogate in seawater for biosecurity of shellfish farms

M. Monnot, J. Ollivier, H. Taligrot, P. Garry, C. Cordier, C. Stavrakakis, F.S. Le Guyader, P. Moulin (France)

11:50 SEAW-OL-8

Integration of in-situ water purification into zero-gap cell design for direct seawater electrolysis

A.Y. Liou, F. Popkes, D. Vermaas (Netherlands)

12:10 SEAW-SOL-2

Thin film nanocomposite membranes incorporated with zwitterionic block copolymer functionalized graphene oxide for desalination

K. Matshetshe, K. Sikhwivhilua, G. Ndlovua, P. Tetyana, N. Moloto, Z. Tetana (South Africa)

12:20 SEAW-SOL-4

Insights into Boron Affinity of Functionalized Carbon Nanotube Embedded Polyamide Membranes for Desalination

S. Kürklü-Kocaoğlu[1], A. Güvensoy-Morkoyun[1], C. Yıldırım[1], S. Velioğlu[1], M.G. Ahunbay[2], **S.B. Tantekin-Ersolmaz**1 ([1]Turkey, [2]France)

12:30–14:00 **Lunch**

14:00–14:10 Membranes for seawater and brackish water desalination | T4

Chairs: Z. Niavarani (Germany), S. Suran (Netherlands)

14:00 SEAW-SOL-5

Tuning of reverse osmosis membranes by exfoliated layered double hydroxide nanosheets to enable boron rejection from brackish water

S. Zhu, S. Bor Chen (Singapore)

14:10–15:10 Membrane (bio)artificial organs | T5

Chairs: Z. Niavarani (Germany), S. Suran (Netherlands)

14:10 ARTORG-SOL-1

Matrix-asissted hollow fiber membranes in microphysiological systems – next generation organ-on-chip systems

T. Götz, A. Weghofer, D. Geilen, P. Loskill, M. Raasch, T. Schiestel (Germany)

14:20 ARTORG-SOL-2

Fabrication, modification and characterization of PMP membranes for extracorporeal membrane oxygenation (ECMO) system

T. He, Z. Cui (China)

14:30 ARTORG-OL-1

Silicon nanoporous filter technology: towards artificial kidneys

S. Suran[1], L. Lindeboom[1], F. Wieringa[1], C. Cummins[2], S.S. Saseendran[2], A.R. Chaudhuri[2], A. Humbert[2], L. Shafeek[3], J. Vollenbroek[1], G. Langereis[1], P. van Deursen[1], S. Severi[2] ([1]Netherlands, [2]Belgium, [3]Austria)

14:50 ARTORG-OL-2

Ibuprofen-immobilized thin films: boosting the removal of protein-bound uremic toxins

F. Rodrigues, D. Brilhante, A. Macêdo, R.F. Pires, M. Faria (Portugal)

15:10–16:00 Microfiltration, ultrafiltration | T2

Chairs: Z. Niavarani (Germany), S. Suran (Netherlands)

15:10 MFUF-OL-1

Modifying microfiltration membranes with electron beam irradiation for enhanced EDC removal

Z. Niavarani, D. Breite, A. Schulze (Germany)

15:30 MFUF-SOL-1

LSPR-QCMD studies of UF membrane fouling mechanisms

D. Abukhadra, Y. Oren, M. Herzberg (Israel)

15:40 MFUF-SOL-2

Assessing oil and water recovery from palm oil mill effluent: a comparative analysis of PVDF and α-Al_2O_3 ultrafiltration membranes

S.A.A. Al-Muraisy[1], J. Wu[1], M. Chen[1], **B. Tanis**, S.G.J. Heijman[1], S. bin Ismail[2], J.B. van Lier[1], R.E.F. Lindeboom[1] ([1]Netherlands, [2]Malaysia)

15:50 MFUF-SOL-3

Preparation of Recycling-based Polymer Membranes from Poly (ethylene terephthalate) and Polycarbonate

D. Breite, M. Went, M. Krause, S. Zacharias, T. Schreiber, Y. Zhale, M. Kühnert, A. Prager, L. Stieler, N. Schönherr, A. Schulze (Germany)

16:00–16:30 Coffee break

16:30–18:20 Microfiltration, ultrafiltration | T2

Chairs: D. Dutczak (Belgium), I. Gurbuz (Netherlands)

16:30 MFUF-OL-2

Challenges in pore size characterization of thin films and hollow fiber membranes with capillary flow porometry

D. Dutczak[1], A. Sobolewska[2], W. Motyka[2], L. Sharaf[2], I. Struzynska-Piron[1], M. Angesleva[1], E. Pattyn[1] ([1]Belgium, [2]Germany)

16:50 MFUF-OL-3

Extraction of nanoplastics from water and size-based separation using a novel membrane filtration system

M. Arnould, M. Albignac, P. Bacchin, A. Ter-Halle, C. Causserand (France)

17:10 MFUF-OL-4

Design of a multi-stage membrane filtration system for concentration and separation of colloids: example of skim milk microfiltration

G. Gésan-Guiziou, M. Loginov, J. Cany, M. Brause Correa, N. Leconte, F. Garnier-Lambrouin, I. Sall, C. Fargues, H. Romdhana, V. Athès-Dutour (France)

17:30 MFUF-OL-5

Investigation of the electrosorption process on a platinum-coated nylon microfiltration membrane for the removal of organic dyes

M. Ismahil, M. Meyer, M. Ernst (Germany)

17:50 MFUF-OL-6

Smart self-cleaning microfiltration membranes via embedded actuation

I. Gurbuz, A. Hunt, H. Bazyar (Netherlands)

18:10 MFUF-SOL-4

Critical impact factors in the design of low-fouling hydrogel coatings for high performance ultra- and microfiltration membranes

S. Weissbach, D. Rohleder, A. Ley, V. Thom, M. Ulbricht (Germany)

Club A

8:30–9:50 Nanostructured and multifunctional membranes | T1

Chairs: D. Brown (France), S. Sahu (Israel)

8:30 NANM-OL-1

Self-cleaning hollow fiber membranes with enzymatically active microgels for fouling reduction

M.A. Restrepo, F.B. de S. Mendes, L. Waterkamp, M. Wessling (Germany)

8:50 NANM-OL-2

Development of UiO-67-polyaniline modified membrane for efficient dye-water separation

S. Sahu, R. Kasher (Israel)

9:10 NANM-OL-3

Nanofiber-like PAN membrane with micro-nano composite structure fabricated via atomization-assisted nonsovlent induced phase separation method

G. Pan, Y. Li, **Y. Liu** (China)

9:30 NANM-OL-4

Separation-sensing microfluidic device for in-situ detection and analysis

G. Kontaxi[1], G. Wensink[2], P.M. Sberna[1], M. Rücker[1], M.J. Serpe[2], H. Bazyar[1] ([1]Netherlands, [2]Canada)

9:50–10:00 Membranes in hydrogen production and separation | T2

Chairs: D. Brown (France), S. Sahu (Israel)

9:50 HYDR-SOL-1

Optimization of hydrogen barrier layer properties via molecular modelling of interfacial polymerization

D. Brown (France)

10:00–10:30 Coffee break

10:30–12:30 Membranes in hydrogen production and separation | T2

Chairs: A. Arratibel (Spain), A. Ali (Denmark)

10:30 HYDR-OL-1

Integrated membrane distillation-electrolyzer system for green hydrogen production

A. Ali, W. Zhao, V. Liso, C. Quist-Jensen (Denmark)

10:50 HYDR-OL-2

Beyond filtration: how Agfa's zirfon membranes help unlock the field of alkaline water electrolysis
R. Thür, N. Valckx, R. De Bruycker, T. Haegens, P. Van den Mooter, E. Dom, M. Sauvageot (Belgium)

11:10 HYDR-OL-3

H_2 purification with carbon membranes in presence of H_2S
A. Arratibel, J. Ollo, M.J. Bellón, M.A. Vega, A. Nieto, A. Ruiz (Spain)

11:30 HYDR-OL-4

Matrimid/$LaNi_5$ high performance membranes for hydrogen purification from industrial waste streams
G. Moral, **A. Ortiz Sainz De Aja**, D. Gorri, I. Ortiz (Spain)

11:50 HYDR-SOL-2

Enhanced performance of polymeric membranes using multi-layered CNTs modified with TiO_2 for water treatment applications: optimization and life cycle analysis
I. Akin, G. Arslan, M. Karaman, B. Ertekin, D. Aydin, J. Jaafar, **M. Ersoz** (Turkey)

12:00 HYDR-SOL-3

Utilizing machine learning to optimize the fabrication of metal-organic framework-derived polymer membranes for hydrogen separation
N. Prasetya[1,2], L. Pilz[1], C. Natzeck[1], J. Wohlgemuth[1], N. Scheuermann[1], S. Spiegel[1], S. Oßwald[1], A. Knebel[1], S. Bräse[1], C. Wöll[1], M. Tsotsalas[1], B. Ladewig[2] ([1]Germany, [2]Luxembourg)

12:10 HYDR-SOL-4

Investigation of H_2/CO_2 separation performances of MXenes as membrane by molecular simulations
Ş. Massoumıları, M. Doğancı, T. Baysal, S. Velioğlu (Turkey)

12:20 HYDR-SOL-5

An innovative catalytic membrane reactor for H_2 production via ammonia decomposition
E. Napolitano, A. Brunetti, G. Barbieri (Italy)

12:30–14:00 **Lunch**

14:00–14:10 Membranes in hydrogen production and separation | T2

Chair: M. Sjölin (Sweden)

14:00 HYDR-SOL-6

Continuous flowing electroless pore-plating to fabricate planar Pd-composite membranes with increased H_2-permeance
A.J. Santos-Carballés, A.J. Vizcaíno, R. Sanz, J.A. Calles, **D. Alique** (Spain)

14:10–16:00 Membranes in agro-food processing and food packaging | T4

Chair: M. Sjölin (Sweden)

14:10 AGRO-SOL-1

Efficient electro-osmotic dewatering of biomass for the food industry

A.A. Lamb, Z. Borneman, K. Nijmeijer (Netherlands)

14:20 AGRO-SOL-2

A green process for the recovery of biomolecules from fennel wastes: identifying target molecules and assessing membrane nanofiltration for their separation

C. Conidi, R. Morelli, A. Elia, A. Cassano (Italy)

14:30 AGRO-OL-1

Solving biomimetic: protein encapsulation and membrane incorporation

M. Pejman, S.M. Qun, F. Schmitz, S. Isaksson, M. Andersson (Sweden)

14:50 AGRO-OL-2

Development of a membrane process for the concentration of fava bean extract for plant-based dairy applications

M. Sjölin[1], G. Rudolph-Schöpping[1,2], M. Smienk[1], F. Lipnizki[1] ([1]Sweden, [2]Germany)

15:10 AGRO-OL-3

Membranes to emulsions and back to membranes: novel plant-based deep eutectic solvents for food packaging films

B. Alke[1,2], U.T. Syed[1,2], M. Tariq[1], V. Alves[1], S. Mondal[1], S. Nunes[2], J. Crespo[1], C. Brazinha[1] ([1]Portugal, [2]Saudi Arabia)

15:30 AGRO-OL-4

The effect of feed conditions on selective lactose separation from whey effluent using polyelectrolyte multilayer membranes

H. Zengin, I. Achterhuis, I. de Bouhid Aguiar, C.G.P.H. Schroën, W.M. de Vos (Netherlands)

15:50 AGRO-SOL-3

Composite anion-exchange membranes for whey demineralization by electrodialysis

E. Khetsomphou[1], F. Deboli[2,3], M. L. Donten[3], L. Bazinet[1] ([1]Canada, [2]Belgium, [3]Luxembourg)

16:00–16:30 Coffee break

16:30–17:30 Membrane bioreactors, submerged MBR | T2

Chair: S. De (Germany)

16:30 MBR-OL-1

Comparing the effect of MBR pretreatment on downstream ozonation with conventional ozone applications in wastewater treatment

M. Werner, G. Hoffmann, M. Hetschel, S. Panglisch (Germany)

16:50 MBR-OL-2

Solar powered membrane bioreactors – a promising technology for water reuse in East Africa

S. De[1,2], D.N. Dinh[1], T. Atiye[1], J. Hoinkis[1] ([1]Germany, [2]Italy)

17:10 MBR-OL-3

Application of recycled ultrafiltration membranes in an aerobic membrane bioreactor (aMBR): a validation study

L. Rodríguez-Sáez, J. Landaburu-Aguirre, E. García-Calvo, S. Molina (Spain)

17:30–18:20 Pervaporation, vapor permeation | T2

Chair: S. De (Germany)

17:30 PERV-OL-1

Pervaporation of organic solvents using polymeric membranes of PIM-1

S. Aloraini, A.B. Foster, P.M. Budd (United Kingdom)

17:50 PERV-OL-2

Pervaporative separation of methanol and acetonitrile mixtures: screening of membrane materials

J. Janák, J. Polena, J. Šercl, Z. Hrdlička, T. Moucha, Š. Hovorka, O. Vopička (Czechia)

18:10 PERV-SOL-1

Integration of pervaporation in organic compounds dehydration processes

F.T. Lo, S. Clercq, E. Gout, P. Moulin, E. Carretier (France)

WEDNESDAY, SEPTEMBER 11, 2024

South hall 1A

14:00–16:00 **Polymer, biopolymer membranes (formation, modification, characterization) | T1**

Chairs: G. Di Luca (Italy), H. Bubela (Ukraine)

14:00 BPM-OL-4

Bio-sustainable membranes for potential water treatment applications

G. Di Luca, B. Gabriele, F. Galiano, A. Figoli (Italy)

14:20 BPM-SOL-2

Removal of small neutral organic micropollutants by pilot-scale reverse osmosis membrane modification with a novel polymer

M. An[1], L. Gutierrez[1], A. D'Haese[1], A. Verliefde[1], E. Cornelissen[1,2] ([1]Belgium, [2]Netherlands)

14:30 BPM-SOL-3

Temperature stable, polymeric thin-film composite membrane for hydrogen separation

M. Ramirez Kantun, F. Weigelt, S. Neumann, S. Shishatskiy, T. Brinkmann (Germany)

14:40 BPM-SOL-4

Sustainable PVDF membranes preparation using γ-Valerolactone (GVL) as a green solvent

F. Russo, F. Galiano, A. Gordano, M. Aquino, S. Santoro, E. Curcio, A. Criscuoli, F. Figoli (Italy)

14:50 BPM-SOL-5

Photocatalytic PVDF Membranes for visible-light degradation of rhodamines

H. Bubela, V. Konovalova, I. Kolesnyk (Ukraine)

15:00 BPM-OL-5

Enhancing polyamide membranes with UV-photooxidation: a simple approach to increase permeability and minimize natural organic matter fouling

H. Rho, D. Kim, J. Lee, K.D. Park, Y. Choi, J.S. Choi (South Korea)

15:20 BPM-OL-6

Hot-pressed saloplastic anion exchange membranes from non-stoichiometric PSS/PDADMAC complexes

H.A. Brink, R.P. Martinho, S. Lindhoud, W.M. de Vos (Netherlands)

15:40 BPM-SOL-6

Biodegradable nanofibrous membranes with tunable porosity

D. Gulyas Oldal[1], F. Topuz[1], T. Holtzl[2], G. Szekely[1] ([1]Saudi Arabia, [2]Hungary)

15:50 BPM-SOL-7

Development of macrovoid-free hollow fiber PES membranes by using DoE and the green solvent *N,N*-dimethyllactamide

K. Leopold, A. Prager, M. Went, M. Kühnert, D. Breite, D. Enke, A. Schulze (Germany)

16:00–16:30 **Coffee break**

16:30–18:40 Polymer, biopolymer membranes (formation, modification, characterization) | T1

Chair: X. Zhang (Netherlands)

16:30 BPM-OL-7

Chemical crosslinking for enhanced stability of polyelectrolyte multilayer nanofiltration membranes under high salinity conditions

X. Zhang, A.J.B. Kemperman, H. Miedema, E. te Brinke, W.M. de Vos (Netherlands)

16:50 BPM-OL-8

Fabrication of mechanically stable polyelectrolyte complex hollow fiber membrane for nanofiltration

A. Zhao, M.A. Restrepo, S. Emonds, F. Karakas, J. Kamp, H. Roth, M. Wessling (Germany)

17:10 BPM-OL-9

On the road to sustainable membrane fabrication – effect of biobased copolymer blends on membrane performance

L. Wang[1], A. Werker[1,2], Z. Borneman[1], K. Nijmeijer[1] ([1]Netherlands, [2]Australia)

17:30 BPM-OL-10

Microbes to membranes: a comprehensive exploration of bacterial cellulose in air/gas filtration and biomedical applications

A. Fatima, F.X. Nascimento, J.G. Crespo (Portugal)

17:50 BPM-OL-11

Thin film composite nanofiltration membranes by coating anionic and cationic ionomers on polyacrylonitrile membranes

V. Schaufler, M. Ulbricht (Germany)

18:10 BPM-OL-12

Polymeric fluorine-free ionomers and their complexes with polyelectrolytes for thin-film composite nanofiltration membranes

S. Kroß, M. Ulbricht (Germany)

18:30 BPM-SOL-8

An insight into an innovative surface modification technique for antifouling polyamide nanofiltration membranes

A. Taghipour[1], P. Karami[1], M.M. Sandhya[2], M. Sadrzadeh[1] ([1]Canada, [2]India)

South hall 1B

14:00–14:40 Membranes in wastewater treatment | T4

Chair: M. Schmidt (Germany), M. Abdulhamid (Saudi Arabia)

14:00 WWT-OL-19

Towards zero liquid discharge: Dairy wastewater recycling and sludge processing

D. Horňák, M. Vondra, M. Procházková, M. Touš, V. Máša (Czechia)

14:20 WWT-SOL-14

Utilization of acidic stream of manmade fibre industries to recover values using nanofiltration membrane

S. Mondal, G. Tambade, P. Kanthale, S. De (India)

14:30 WWT-SOL-15

Reusable low-pressure microporous filter for ammonium removal and recovery from water

M. Chaudhary, O. Nir (Israel)

14:40–15:40 Immobilized enzymes and biocatalytic membrane reactors | T2

Chair: M. Schmidt (Germany), M. Abdulhamid (Saudi Arabia)

14:40 BIOREA-OL-1

Enzyme-functionalized polymer membranes for enhanced protein recovery from microalgae

T. Schreiber[1], M. Schmidt[1], A. Poidevin[2], J. Becker-Jahn[1], K. Leopold[1], E. Couallier[2], **A. Schulze**[1] ([1]Germany, [2]France)

15:00 BIOREA-OL-2

Functionalization of polymer membranes with proteins and enzymes using electron beam irradiation

M. Schmidt, A. Prager, A. Abdul Latif, N. Schönherr, S. Zahn, A. Schulze (Germany)

15:20 BIOREA-SOL-1

Membrane modification methods for high-performance enzymatic membrane reactors

Z. Su[1], K. Jankowska[1], A. Popkov[1], M. Malankowska[1], J. Luo[2], M. Pinelo[1] ([1]Denmark, [2]China)

15:30 BIOREA-SOL-2

The performance of a biocatalytic hollow fiber membrane for the degradation and filtration of natural organic matter from surface water

P.P. Mamba, T. A.M. Msagati, B.B. Mamba, M.M. Motsa, T.T.I. Nkambule (South Africa)

15:40–16:00 Mixed matrix membranes (formation, modification, characterization) | T1

Chair: M. Schmidt (Germany), M. Abdulhamid (Saudi Arabia)

15:40 MMM-SOL-1

Rapid oil spill removal using zeolitic imidazolate framework functionalized polyvinyl chloride membrane: impact of experimental conditions on performance

F. Youness[1], Z.A. AlDhawi[2], **M. Abdulhamid[2]**, R. Bilbeisi[1] ([1]Lebanon, [2]Saudi Arabia)

15:50 MMM-SOL-2

Unveiling the properties of composite membranes at the nanoscale

R. Hardian, G. Szekely (Saudi Arabia)

16:00–16:30 Coffee break

16:30–18:40 Mixed matrix membranes (formation, modification, characterization) | T1

Chairs: J. Park (South Korea), E. Lasseuguette (United Kingdom)

16:30 MMM-OL-1

Graphene oxide-titanium oxide nanocomposites: key elements in PES mixed matrix membranes for dye removal

S. Bhattacharyya, L. Donato, S. Chakraborty, V. Calabro, M. Davoli, C. Algieri (Italy)

16:50 MMM-OL-2

UV-crosslinked Mixed-Matrix Membranes (MMMs) for fast and selective transport of small gas molecules

J.E. Kim, M.H. Ryu, **A. Park**, Y.I. Park, J. Park (South Korea)

17:10 MMM-OL-3

Successful synthesis and comparative analysis of ultra-high zeolite loaded mixed matrix membranes based on glassy polymers

L. Hannes, X. Tan, I. Vankelecom (Belgium)

17:30 MMM-OL-4

Tailored mixed matrix membranes with magnetic MOF (UiO-66-NH_2@$MnFe_2O_4$) for enhanced gas separation efficiency

J. Floreková, S. Jamali Ashtiani, K. Friess (Czechia)

17:50 MMM-OL-5

In-situ characterization of ZIF-8 degradation during interfacial polymerization using microfluidics and fluorescence microscopy

S. Caspers, S. Barbaix, F. De Jong, L. Hannes, M. Van der Auweraer, J. Hofkens, I. Vankelecom (Belgium)

18:10 MMM-OL-6

Nanosized MOF-based network fillers for reducing physical aging of PIM-1 TFC membranes

B. Qiu[1], M. Yu[1,2], J.M. Luque-Alled[3], S. Ding[1], A.B. Foster[1], P.M. Budd[1], X. Fan[1,4], P. Gorgojo[1,3] ([1]United Kingdom, [2]Australia, [3]Spain, [4]China)

18:30 MMM-SOL-3

Thin-film composite mixed-matrix membrane based on Matrimid-ZIF-94
E. Lasseuguette, M.C. Ferrari (United Kingdom)

South hall 2A

14:00–14:40 Molecular imprinted membranes, chiral membranes | T1

Chairs: J. Čížek (Czechia), I. Baert (Belgium)

14:00 IM-OL-1

Electrospinning of cellulose tris(3,5-dimethylphenyl carbamate)s for efficient chiral resolutions via enantioselective membrane filtrations
S. Nono-Tagne, M. Fischer, Y. Ogawa, Y. Nishiyama, I. Otsuka (France)

14:20 IM-OL-2

Mixed matrix enantioselective ion-exchange membrane based on modified silica particles
J. Čížek, M. Labíková, P. Izák, M. Kohout (Czechia)

14:40–16:00 Nanofiltration, reverse osmosis | T2

Chair: J. Čížek (Czechia), I. Baert (Belgium)

14:40 NFRO-OL-6

Tailoring membrane surface properties
A. Pihlajamäki, M.R. Moradi, L. Soto-Salcido, J. Nieminen, M. Mänttäri (Finland)

15:00 NFRO-OL-7

Elucidating the thin-film polymerization characteristics of epoxide-based TFC membranes
I. Baert (Belgium)

15:20 NFRO-OL-8

Functionalized graphene based nanofiltration membrane: a solution towards groundwater treatment
M. Koli, R. Ranjan, S.P. Singh (India)

15:40 NFRO-SOL-7

Nanofiltration membranes with long term stability in extreme pH's
N. Lenaerts, S.R. Hosseinabadi, S. Van Buggenhout, M. Cools, R. Verbeke, I. Vankelecom (Belgium)

15:50 NFRO-SOL-8

Graphene quantum dot modified nanofiltration membrane
A. Saud, **S.J. Zaidi** (Qatar)

16:00–16:30 Coffee break

16:30–18:40 Nanofiltration, reverse osmosis | T2

Chairs: M. Shalaby (Egypt), K. Broekelmann (Germany)

16:30 NFRO-OL-9

Lithium recovery from monovalent/multivalent ion mixtures by polyelectrolyte multilayer hollow fiber nanofiltration membranes

K. Broekelmann, A. Wallraff, H. Roth, M. Wessling (Germany)

16:50 NFRO-OL-10

Reverse osmosis membrane efficiency in removal of PFAS

J. Šurlan[1], Z. Šereš[1], N. Maravić[1], N. **Đurišić** Mladenović[1], C. Brazinha[2], C.F. Galinha[2], I. Antić[1], J. Živančev[1], J.G. Crespo[2] ([1]Serbia, [2]Portugal)

17:10 NFRO-KL-2

Modification of polymeric/polyelectrolyte layers and its application in selective ion rejection nanofiltration membranes

M. Shalaby, M.H. Gaber (Egypt)

17:50 NFRO-OL-11

Nanofiltration for recovery and purification of lactose from acid whey

M. Roselli, R. Onesti, C. Boi, S. Bandini (Italy)

18:10 NFRO-OL-12

Nanofiltration membranes with nanochannels for accurate ion separation

S. Hong, M. Di Vincenzo[1], A. Tiraferri[2], E. Bertozzi[2], R. Górecki[1], B. Davaasuren[1], X. Li[1], S. Nunes[1] ([1]Saudi Arabia, [2]Italy)

18:30 NFRO-SOL-9

Separation of pharmaceuticals from wastewater using nanofiltration membranes as one of the possibilities of a circular economic approach

N. Ezeogu, O. Anike, J. Cuhorka, P. Mikulášek (Czechia)

South hall 2B

14:00–14:30 Membranes for air treatment (purification, dehumidification) | T5

Chairs: I. Červeňanský (Slovakia), X. Tan (Belgium)

14:00 AIR-OL-1

Design of a tunable mixed matrix membrane platform for high-performance, industry-relevant gas separations

X. Tan, S. Robijns, M. Dusselier, I. Vankelecom (Belgium)

14:20 AIR-SOL-1

Membranes with highly selective absorbents encapsulated in sub-micron carbon capsules for gas separation

I. Souza, B. Esteves, R.T. Pais, **P.J. Carvalho** (Portugal)

14:30–16:00 Membrane distillation, osmotic distillation, membrane crystallization | T2

Chairs: I. Červeňanský (Slovakia), X. Tan (Belgium)

14:30 MDOD-SOL-8

Impact of heterogeneous seeding on membrane distillation crystallization

S. Flatscher, MW. Hlavitschka (Austria)

14:40 MDOD-OL-9

Upscaling silicone nanofilament coated membranes for membrane distillation

M.D. Sosa, H.J. Butt, M. Kappl (Germany)

15:00 MDOD-OL-10

Study of the performance in Membrane Distillation of PVDF membranes prepared with green solvents and specific coatings

M.C. Carnevale, F. Russo, A. Corozzi, M. Raimondo, R. Conti, M. Aquino, S. Santoro, E. Curcio, A. Figoli, A. Criscuoli (Italy)

15:20 MDOD-OL-11

Testing of hollow fiber ion-exchange membranes for the crystallization of magnesium hydroxide

E. Komačková, L. Sedlík, **I. Červeňanský,** M. Mihaľ, J. Markoš (Slovakia)

15:40 MDOD-SOL-9

In-depth study of direct contact membrane distillation for the concentration of phenolic compounds from citrus waste

M. Cifuentes-Cabezas[1], C.M. Sánchez-Arévalo[1], F. Russo[2], F. Macedonio[2], M. Frappa[2], J.A. Mendoza-Roca[1], S. Álvarez-Blanco[1], A. Figoli[2] ([1]Spain, [2]Italy)

15:50 MDOD-SOL-10

Nitrogen recovery from anaerobic digestate by membrane distillation

J. Canellas, R. Pich, S. Casas, X. Martinez (Spain)

16:00–16:30 Coffee break

16:30–18:40 Membrane distillation, osmotic distillation, membrane crystallization | T2

Chairs: M. Zhai (United Kingdom), E. McAdam (United Kingdom)

16:30 MDOD-OL-12

Graphene oxide-based hybrid membranes with regulated water permeation channel

M. Zhai, F. Moghadam, K. Li (United Kingdom)

16:50 MDOD-OL-13

Spatio-temporal progression and influencing mechanism of local wetting in membrane distillation

J. Mo, **X. Li**, Z. Yang (China)

17:10 MDOD-OL-14

How the boundary layer controls nucleation and crystal growth in membrane distillation crystallisation for brine management

E. McAdam, A. Ouda, A. Jikazana (United Kingdom)

17:30 MDOD-OL-15

Smart hybrid membranes for MD applications

E. Pantuso[1], E. Ahmed[2], E. Fontananova[1], A. Brunetti[1], I. Tahir[2], D. Prasad Karothu[2], N.A. Alnaji[2], G. Dushaq[2], M. Rasras[2], P. Naumov[2], **G. Di Profio**[1] ([1]Italy, [2]United Arab Emirates)

17:50 MDOD-OL-16

Direct contact membrane distillation crystallization and parameter analysis for epsomite crystals

A. Saud, A. Ali, C.A. Quist-Jensen (Denmark)

18:10 MDOD-OL-17

Membranes with anti-fouling properties based on 2D nanoadsorbents for membrane distillation

A. Moriones[1], L. Cano[1], J.M. Luque-Alled[1], C. Téllez[1], P. Gorgojo[1,2] ([1]Spain, [2]United Kingdom)

18:30 MDOD-SOL-11

Formation of powdered moringa in membrane distillation crystallization

L. Nthunya, H. Richards, Z. Hlatshwayo, B. Setati, L. Chimuka (South Africa)

North hall 2

14:20–16:00 Membranes for energy, (microbial) fuel cells, batteries, electrolyzer | T2

Chair: C. Ye (United Kingdom)

14:20 ENER-OL-9

Enhanced bipolar membrane water dissociation reaction with layer-by-layer assembled clay composite junctions

N. Boulif, M. Houben, Z. Borneman, K. Nijmeijer (Netherlands)

14:40 ENER-KL-1

Near-frictionless ion transport within triazine framework membranes

C. Ye[1], P. Zuo[2], Z. Jiao[3], N.B. McKeown[1], Z. Yang[2], T. Xu[2] ([1]United Kingdom, [2]China, [3]USA)

15:20 ENER-OL-10

Hydrogen adsorbing PUR/Pd nanocomposite nanofibrous membrane prepared by electrospinning technology

J. Hoskovec, P. Čapková, P. Ryšánek, D. Gardenö, K. Friess, J. Jarolímková, V. Greguš, P. Kaule, T. Dušková, M. Škvorová, V. Šícha, O. Benadada (Czechia)

15:40 ENER-SOL-8

Covalent organic frameworks within rubbery organic frameworks membranes for electrochemical energy applications

S. Daakour[1], P. Fortin[2], M. Müller[2], S. Andrenacci[2], M. Barboiu[1] ([1]France, [2]Norway)

15:50 ENER-SOL-9

Polymeric proton exchange membranes for semi-organic redox flow batteries

F. Niccolai (Italy)

16:00–16:30 Coffee break

16:30–18:00 Membranes for energy, (microbial) fuel cells, batteries, electrolyzer | T2

Chair: S. Zhou (Hong Kong)

16:30 ENER-OL-11

MFI zeolite ion conductivity membranes for flow battery

D. Zhang, K. Huang, Y. Fan, Z. Xu (China)

16:50 ENER-OL-12

Anisotropic proton-exchange membrane with enhanced through-plane conductivity

J. Li, J.P. Singh, D.R. Dekel, V. Freger (Israel)

17:10 ENER-OL-13

Energy harvesting from acid mine drainage using a highly proton/ion-selective thin polyamide nanofilm

S. Zhou, C.Y. Tang (Hong Kong)

17:30 ENER-OL-14

Micro-structured hollow fiber SOEC towards sustainable syngas production

P. Yan, K. Li (United Kingdom)

17:50 WWT-SOL-6

Photocatalytic degradation of pollutants by 2D material based nanochannels for water filtration

H.H. Nawaz, M. Umar, H. Gong (United Kingdom)

Club E

14:00–15:20 Artificial intelligence methodologies in membrane science and engineering | T3

Chair: S. Arya (Czechia, United Arab Emirates), S. Zeinali Danalou (Canada)

14:00 HO.OL-1

Horizon Europe framework program and related initiatives for research and innovation funding
P. Pracna (Czechia)

14:20 AI-OL-1

Advances in the characterization and digital reconstruction of 2-D and 3-D pore structure
S. Zeinali Danalou, H. Chamani, D. Yu, J. Howe, J. Hattrick-Simpers, P. Lee, J. Werber (Canada)

14:40 AI-OL-2

Evaluation of RNN, XGBoost algorithms for reverse osmosis-based seawater desalination
G.R. Kim, J.H. Sim, S.Y. Ka, Y.C. Woo (South Korea)

15:00 AI-OL-3

Flux decline prediction in dead-end membrane filtration using physics-informed machine learning
M. Tagliavini, S.A. Snyder (Singapore)

15:20–16:00 Biohybrid, biomimetic, bioinspired, bionic membranes (formation, modification, characterization) | T1

Chair: S. Arya (Czechia, United Arab Emirates), S. Zeinali Danalou (Canada)

15:20 MOL-OL-1

Facile nano-alchemy to synthesize bacterial cell membrane-derived nanovesicles and confluent membrane layers on planer surfaces, 2D and 3D nanomaterials for versatile applications
S. Arya, Y.O. Kassar, A.M. Pappa (United Arab Emirates)

15:40 MOL-OL-2

Ampholytic hydrogel with polydopamine stabilizing UiO-67 layer on polyacrylonitrile membrane for efficient dye/salt separation
P.K. Prajapati, R. Kasher (Israel)

16:00–16:30 Coffee break

16:30–18:30 Biohybrid, biomimetic, bioinspired, bionic membranes (formation, modification, characterization) | T1

Chairs: M. Barboiu (France), A. Brunetti (Italy)

16:30 MOL-KL-1

Biomimetic membranes incorporating artificial water channels for high-performance water reverse osmosis desalination

M. Barboiu (France)

17:10 MOL-OL-3

Cascade enzymatic reaction to continuously produce hydroxytyrosol from oleuropein from olive leaves by an intensified membrane bioreactor

R. Mazzei[1], **F. Bazzarelli**[1], H. Terholsen[2], M. Nardi[1], U.T. Bornscheuer[2], L. Giorno[1] ([1]Italy, [2]Germany)

17:30 MOL-OL-4

Synthetic carbonyl-substituted ureido imidazole molecules as water channels for desalination

D.D. Su[1], M. Barboiu[1,2] ([1]France, [2]Romania)

17:50 MOL-KL-2

Dimethyl ether production by MeOH dehydration through innovative zeolite BEA and ZSM-5 membrane reactors

E. Avruscio[1], A.W. Sabir[2], P. S. Lee[2], G. Barbieri[1], E. Catizzone[1], M. Migliori[1], **A. Brunetti**[1] ([1]Italy, [2]South Korea)

18:30–18:40 Electromembrane processes (RED, ED, etc.) | T2

Chairs: M. Barboiu (France), A. Brunetti (Italy)

18:30 EMP-SOL-8

Lithium recovery by membrane electrolysis in the RHINOCEROS project

M. Azpeitia, J. Hidalgo, A. Manjon, **G. Pozo** (Spain)

Terrace 2A

14:20–15:00 Forward osmosis, pressure retarded osmosis | T2

Chairs: D. Koutsonikolas (Greece), V. Konderla (Netherlands)

14:20 FOPRO-OL-1

An Evaluation of water flux and reverse solute flux performance of TFC-FO membranes integrated with ZIF-8 and UiO-66 nanoparticles

M.F. Aras, S.A.N. Mahrabani, D. Osman, M.E. Pasaoglu, I. Koyuncu (Turkey)

14:40 FOPRO-OL-2

Mitigating microplastic fouling in forward osmosis membranes through Innovative MOF-Chitosan integration

M. Najafi Arani, M. Golgoli, J. Farahbakhsh, M. Zargar (Australia)

15:00–16:00 Membranes for CO_2 capture | T4

Chair: D. Koutsonikolas (Greece), V. Konderla (Netherlands)

15:00 CO2-SOL-3

Ionic liquid-enhanced polymeric membranes for improved CO_2/CH_4 separation

A.L. Hupsel, F.G. Brandão, L.S. Pereira, F.A. Kronemberger, **F. Kronemberger**, A.C. Habert (Brazil)

15:10 CO2-SOL-4

CO_2 capture with membrane contactors and KOH/K_2CO_3 solvents towards direct electrochemical CO_2 utilization

D. Koutsonikolas, T. Grekou, A. Asimakopoulou, G. Pantoleontos, G. Karagiannakis (Greece)

15:20 CO2-OL-1

Seawater CO_2 capture using bipolar membrane electrodialysis

V. Konderla, D.A. Vermaas (Netherlands)

15:40 CO2-SOL-5

A systematic analysis of CO_2 capture from water at varying salinities by Bipolar Membrane Electrodialysis (BPMED)

M. Aliaskari, F. Saravia, H. Horn (Germany)

15:50 CO2-SOL-6

Membrane properties of polymer based on norbornenes with polar functionalities

E. Bermesheva, A. Wozniak, E. Medentseva, P. Khrychikova, I. Borisov, A.V. Volkov, **M. Bermeshev** (Russia)

16:00–16:30 Coffee break

16:30–18:30 Membranes for CO_2 capture | T4

Chair: P. Sanchez Camacho (United Kingdom), F. Kronemberger (Brazil)

16:30 CO2-OL-2

CO_2 adsorption mechanism in amine-PIM-1

C. Rizzuto[1], L. Calucci[1], F. Nardelli[1], A. Fuoco[1], E. Esposito[1], M. Monteleone[1], J.C. Jansen[1], G. De Luca[1], M. Carta[2], C.G. Bezzu[2], B. Comesaña-Gándara[2,3], N.B. McKeown[2], P. Budd[2], B. Satilmis[4], E. Tocci[1] ([1]Italy, [2]United Kingdom, [3]Spain, [4]Turkey)

16:50 CO2-OL-3

Preparation of CO_2 selective membrane modules and the gas separation properties

I. Taniguchi (Japan)

17:10 CO2-OL-4

Silver incorporation to SDC-molten carbonate membranes for CO_2 separation

P. Sanchez Camacho, G.A. Mutch, I.S. Metcalfe (United Kingdom)

17:30 CO2-OL-5

Random poly(1,3-dioxolane)-based terpolymers for CO_2 separations

J. Rosenthal, I. Tan, T. Song, W. Wang, J.M. Richardson, N.A. Lynd, B.D. Freeman (USA)

17:50 CO2-OL-6

Water vapor effect in polymer with Intrinsic Microporosity for carbon capture applications

E. Medri[1], F. Bretton[2], C. Ye[2], N. McKeown[2], M.C. Ferrari[2], M. Giacinti Baschetti[1] ([1]Italy, [2]United Kingdom)

18:10 CO2-OL-7

Impact of sub-ambient temperature on aging rate and gas separation properties of polymers of intrinsic microporosity

P. Dieudonné, M.C. Ferrari (United Kingdom)

THURSDAY, SEPTEMBER 12, 2024

South hall 1A

8:30–10:00 **Polymer, biopolymer membranes (formation, modification, characterization) | T1**

Chairs: E. Gabirondo (Spain), D. Plachá (Czechia)

8:30 BPM-OL-13

Novel degradable poly(eutectic solvent)-based membranes

E. Gabirondo[1], D. Mecerreyes[2], L. C. Tomé[1] ([1]Portugal, [2]Spain)

8:50 BPM-SOL-9

Bio-based PEBAX® hollow fiber membranes

M. Etxeberria-Benavides[1], S.M. Otaño[1], J.J. Flat[2], Q. Pineau[2], M. Sleczkowski[3], H.W. Spakman[3], K.V. Bernaerts[3], **O. David**[1] ([1]Spain, [2]France, [3]Netherlands)

9:00 BPM-SOL-10

A greener synthetic route to PIM-1: synthesis of PIM-1 using the novel solvent methyl-5-(dimethylamino)-2,2-dimethyl-5-oxopentanoate (MDDOP)

A. Ayyaz[1], A.B. Foster[1], L. Cseri[1,2], G. Szekely[1,3], P.M. Budd[1] ([1]United Kingdom, [2]Hungary, [3]Saudi Arabia)

9:10 BPM-OL-14

Polylactide based membranes with long-term antimicrobial effect

D. Plachá[1], K. Škrlová[1], J. Zágora[1], Z. Rybková[1], K. Malachová[1], M. Fernández-Garcia[2] ([1]Czechia, [2]Spain)

9:30 BPM-SOL-11

Polymer of intrinsic microporosity enabled pH-responsive adsorptive membrane: selectivity and mechanism

C.Y. Loh[1], A.D. Burrows[1], X. Zhang[2], M. Xie[1] ([1]United Kingdom, [1]China)

9:40 BPM-SOL-12

Improved nanofiltration through inverted membrane structures

T. Watt, E. te Brinke, J. de Grooth, W.M. de Vos (Netherlands)

9:50 BPM-SOL-13

Polyhydroxyalkanoate based microfiltration membranes: influence of the copolymers in composition on membrane properties

D. Tran, L. Lemiegre, J.L. Audic, A. Courtois, P. Loulergue (France)

10:00–10:30 **Coffee break**

10:30–12:10 **Polymer, biopolymer membranes (formation, modification, characterization) | T1**

Chairs: P. Budd (United Kingdom), B. Welch (Israel)

10:30 BPM-OL-15

Formation of cellulose nanocrystal membranes by controlled deposition
C. Kocaman, B. Can İçten, E. Büküşoğlu, **P.Z. Culfaz-Emecen** (Turkey)

10:50 BPM-OL-16

Building polyamide films one monomer at a time: structural advantages of reverse osmosis membranes via molecular layer deposition
B. Welch[1,2], R. Cai[1], V. Rozyyev[2], J.W. Elam[2], T. Segal-Peretz[1] ([1]Israel, [2]USA)

11:10 BPM-OL-17

Assessment of poly(hydroxyalkanoate)s-PIM blends as novel sustainable materials for gas separation
K. Papchenko, J. Tobin, N.B. McKeown, M.G. De Angelis (United Kingdom)

11:30 BPM-OL-18

Influence on membrane performance of the topology of polymers of intrinsic microporosity
P. Budd, A.B. Foster (United Kingdom)

11:50 BPM-OL-19

Asymmetric polyelectrolyte multilayer nanofiltration membranes: structural characterisation via transport phenomena
M. Junker, W. Jonkers, E. te Brinke, R. Lammertink, J. de Grooth, **W. De Vos** (Netherlands)

12:10–13:15 **Lunch**

South hall 1B

8:30–9:20 **Mixed matrix membranes (formation, modification, characterization) | T1**

Chairs: L. Brožová (Czechia), R. Válek (Czechia)

8:30 MMM-OL-7

Pebax®/mixed matrix membranes with enchanced permeability and selectivity in CO_2/N_2 separation
G. Santos Medeiros, H. Beneš. R. Konefał, J. Hodan, Z. Pientka, R. Poreba (Czechia)

8:50 MMM-SOL-4

Developing mixed matrix membranes for $CO_2/CH_4/H_2$ separation
D. Ramírez Espinosa (Spain)

9:00 MMM-SOL-5

Superhydrophilic Zr-MOF-incorporated ultrafatilration membranes with enhanced cationic dye rejection performance, permeability, and antifouling property

D.R. Kandel, J. Lee (South Korea)

9:10 MMM-SOL-6

Fabrication of the PVDF/PAN electrospun nanofibrous membranes incorporated with TiO_2/Cu@NH_2-MIL-125 nanocomposite for water remediation

N. Sondezi, K.P. Matabola, **T. Makhetha** (South Africa)

10:00–10:30 Coffee break

10:30–12:10 Mixed matrix membranes (formation, modification, characterization) | T1

Chairs: K. Friess (Czechia), E. Hussein (United Kingdom)

10:30 MMM-OL-8

Computational-aided development of MOF mixed matrix membranes

A. Diaz Marquez, D. Fan[1], S. Naskar[1], A. Ozcan[1,2], S. Jit Datta[3], M. Eddaoudi[3], G. Maurin[1] ([1]France, [2]Turkey, [3]Saudi Arabia)

10:50 MMM-OL-9

The PMMA and CTA-based next-gen mixed matrix membranes with tailored morphology and improved separation performance

K. Friess, S. Jamali Ashtiani, D. Gardenö, J. Floreková, J. Schneider (Czechia)

11:10 MMM-OL-10

Novel composite membranes for blood filtration: enhancing hemodialysis efficiency with innovative membrane design

R. Pires, B. Nunes, F.S.C. Rodrigues, A. Kamakar, M. Faria (Portugal)

11:30 MMM-OL-11

Fabrication of zeolitic imidazolate framework layers on porous substrates by inkjet printing

E. Hussein, S. Pandiyan, I. Brevis, R. Wildman, K. van der Zee, B. Tokay (United Kingdom)

11:50 MMM-OL-12

Multifunctional copolymers with metal-organic frameworks for high-permeance, thin-film composite MMMs

C.S. Lee (South Korea)

12:10–13:15 Lunch

South hall 2A

8:30–10:00 Inorganic membranes (formation, modification, characterization) | T1

Chairs: B. Heijman, L. Winnubst (Netherlands)

8:30 CM-OL-1

Ozone-assisted chemical vapor deposition of silica layers on TiO_2 membranes for industrially relevant carbon capture applications

T. Grekou, D. Koutsonikolas, G. Karagiannakis, E.S. Kikkinides (Greece)

8:50 CM-SOL-1

Impact of prolonged sodium hypochlorite cleaning on silicon carbide ultrafiltration membranes prepared via low-pressure chemical vapor deposition

A. Jan, M. Chen, M. Nijboer, M. Luiten-Olieman, L.C. Rietveld, **B. Heijman** (Netherlands)

9:00 CM-SOL-2

Novel hydrothermal sustainable syntheses of zeolite membranes

A. Tavolaro, S. Catalano, S. Scinico, P. Tavolaro (Italy)

9:10 CM-OL-2

Engineering of stable and conductive graphene oxide (GO)-based layer on ceramic membranes

F. Sprakel[1], A. Nijmeijer [1], J.E. ten Elshof [1], M.A. Pizzoccaro-Zilamy[1,2] ([1]Netherlands, [2]Germany)

9:30 CM-SOL-3

Permeation behaviour and stability of BSCF/CGO MIEC oxygen membranes in presence of CO_2

J. Ollo[1], M. Diaz de Guereñu[1], J. Aragón[1], F. Gallucci[1,2] ([1]Spain, [2]Netherlands)

9:40 CM-SOL-4

Engineering hybrid ceramic membranes through grafting

L. Winnubst[1], M.A. Pizzoccaro-Zilamy[1,2] ([1]Netherlands, [2]Germany)

9:50 CM-SOL-5

How to play with the solute-solvent-membrane interactions of alkyl-based mesoporous ceramic membranes?

F. Altinbas[1], A.D. Borger[1], A. Nijmeijer[1], L. Winnubst[1], M.A. Pizzoccaro-Zilamy[1,2] ([1]Netherlands, [2]Germany)

10:00–10:30 Coffee break

10:30–12:10 **Inorganic membranes (formation, modification, characterization) | T1**

Chairs: W. Kujawski (Poland), O.G. Oloyede (United Kingdom)

10:30 CM-OL-3

Preparation and characterization of six-channel alpha-Al_2O_3 monolith with improved mechanical strength

O.G. Oloyede, J. Yu, D. Chadwick, K. Li (United Kingdom)

10:50 CM-OL-4

Development of TiO_2-coated flexible ceramic nanofiber membranes with photocatalytic degradation ability for water purification

J. Lee, J.H. Ha, H.J. Lee, I.H. Song (South Korea)

11:10 CM-KL-1

Advancing membrane separation: tailored inorganic-organic hybrids with precise physicochemical features

J. Kujawa[1], K. Knozowska[1], I. Koter[1], M. Głodek[1], X. Chen[2], P. Szczepański[1], B. Ośmiałowski[1], **W. Kujawski**[1] ([1]Poland, [2]China)

11:50 CM-OL-5

"Greener" membranes from electrospinning

J. Manasco, I. Ponomarev (Czechia)

12:10–13:15 **Lunch**

South hall 2B

8:30–9:00 **Multi-scale modelling in membrane science and engineering | T3**

Chairs: G. De Luca (Italy), Q.H. Pham (Australia)

8:30 MULTI-OL-1

From molecules to macroscale: an improved multiscale modelling of ions transport in ion-exchange membranes

N. Al-Hamdani[1], G. Purpura[1], **G. De Luca**[1], J. Luque Di Salvo[2], Enrico Sireci[3], A Cipollina[1], G. Micale[1] ([1]Italy, [2]Argentina, [3]Germany)

8:50 MULTI-SOL-1

Energy analysis of electrodialisys with bipolar membranes for chemicals production

G. Virruso, A. Culcasi, A. Tamburini, A. Cipollina, G. Micale (Italy)

9:00–10:00 Membrane reactors, photocatalytic membrane reactors | T2

Chairs: G. De Luca (Italy), Q.H. Pham (Australia)

9:00 MREA-SOL-1

Development of a BiOCl-based photocatalytic membrane reactor for the destruction of persistent organic pollutants (POPs)

A. Junker, M.K. Jørgensen, Z. Wei (Denmark)

9:10 MREA-OL-1

Carbon dioxide hydrogenation to methanol by a novel catalytic membrane reactor

Q. Pham, E. Goudeli, C.A. Scholes (Australia)

9:30 MREA-SOL-2

Phthalocyanine-doped nanofiber membranes utilizing photosensitization for the remediation of persistent pollutants in wastewaters

H. Bushnaq, S. Pu, C. Munro, G. Palmisano, S. Mettu, L.F. Dumée (United Arab Emirates)

9:40 MREA-SOL-3

Design of Z-scheme based photo-electrocatalytic heterojunction membrane reactor for wastewater treatment

P. Kumari, L.F. Dumee (United Arab Emirates)

9:50 MREA-SOL-4

Antibiotics removal in primary wastewater by biofilm in Passive Gravity Driven Membrane Bioreactor (GD-MBR) and the impact on antibiotics resistance genes proliferation

Y. Na, L. Ranieri, A.S.F. Farinha, G.J. Witkamp, J.S. Vrouwenvelder, L. Fortunato (Saudi Arabia)

10:00–10:30 Coffee break

10:30–12:10 Membrane reactors, photocatalytic membrane reactors | T2

Chairs: A. Schäfer (Germany), L. Fischer (Germany)

10:30 MREA-KL-1

Influence of organic matter on the photocatalytic degradation of steroid hormones by TiO_2-coated polyethersulfone microfiltration membrane

S. Liu, P.C. Edara, **A. Schäfer** (Germany)

11:10 MREA-OL-2

Effects of concentration polarization and membrane orientation on the treatment of naproxen by sulfate radical-based advanced oxidation processes within nanofiltration membranes with a catalytic support

T. Wang, J. de Grooth, W.M. de Vos (Netherlands)

11:30 MREA-OL-3

An integrated *in situ* fabrication platform towards metal oxide decorated porous polymer membranes for catalytic water treatment

S.A.H. Hesaraki, M. Ulbricht, **L. Fischer** (Germany)

11:50 MREA-OL-4

Photocatalytic membrane reactor and its modeling

S.A. Heredia Deba, B.A. Wols, D.R. Yntema, **R. Lammertink** (Netherlands)

12:10–13:15 Lunch

North hall 2

8:30–10:00 Membrane process intensification, techno-economic analysis, life cycle assessment | T6

Chairs: Dan Zhao (Denmark), C. Casado-Coterillo (Spain)

8:30 INTENS-OL-1

Holistic optimization of electrochemical CO_2 valorization and membrane-based product purification

M. Hesselmann[1], H. Minten[1], T. Geissler[1], R.G. Keller[1], A. Bardow[2], M. Wessling[1] ([1]Germany, [2]Switzerland)

8:50 INTENS-SOL-1

Deacidification of concentrated cranberry juice by electrodialysis with bipolar membranes: a feasibility study

R. Canuel, V. Perreault, L. Bazinet (Canada)

9:00 INTENS-SOL-2

Sustainable fabrication and CO_2 separation performance of starch: chitosan membranes with 'green' selected fillers

B. Dawood, A. Torre-Celeizabal, M. Rumayor, C. Pina-Pidal, C. Téllez, A. Garea, **C. Casado-Coterillo** (Spain)

9:10 INTENS-OL-2

Hydrogen-Electrodialysis with Bipolar Membrane: the first experimental campaign and preliminary economic assessment

A. Pellegrino, G. Campisi, F. Proietto, A. Tamburini*, A. Cipollina, A. Galia, G. Micale, O. Scialdone (Italy)

9:30 INTENS-SOL-3

Pilot testing of lithium membrane crystallization using ion-exchange membranes

L. Sedlák, I. Červeňanský, E. Komačková, J. Fehér, J. Markoš (Slovakia)

9:40 INTENS-SOL-4

Ultrapure water production for green hydrogen production by membrane technologies: membranes, processes and techno-economic evaluation

D. Zhao, S. Kayiran, F. Fetai, C. Hélix-Nielsen, W. Zhang (Denmark)

9:50 INTENS-SOL-5

Layer-by-layer modification of nanofiltration membranes to improve their ion selectivity for developing circularity processing of urban industrial waste

T. Moghadamfar, J.L. Cortina, L.J. del Valle, M. Reig (Spain)

10:00–10:30 Coffee break

10:30–12:10 Membrane process intensification, techno-economic analysis, life cycle assessment | T6

Chairs: B. Norddahl (Denmark), H. Mahdavi (Australia)

10:30 INTENS-OL-3

Using membranes in future green energy productions on a large scale

B. Norddahl (Denmark)

10:50 INTENS-OL-4

Dewatering of sweet whey using forward osmosis: an industrial scale evaluation

B. Greisner, M. Rienäcker, F. Rögener, A. Lerch (Germany)

11:10 INTENS-OL-5

Towards cost-effective and sustainable PET plastic recycling through glycolysis: ethylene glycol recovery using solution processable mixed matrix membranes derived from porous liquids

H. Mahdavi[1], L. van't Hag[1], Z. Xie[1], M.R. Hill[1], B.D. Freeman[1,2] ([1]Australia, [2]USA)

11:30 INTENS-OL-6

Renewable hydrogen production from raw biogas: a demonstration at TRL7 inside Macbeth project

M. Jégoux[1], P. Olivier[1], C. Tregambe, B. Chezeau, L. Di Felice[3], F. Gallucci[3], M. Binotti[2], M. Ongis[3,4], G. Di Marcoberardino[2], A. Arratibel Plazaola[5], A. Steele[6], S. Poulston[6], M. Schmitt[7] ([1]France, [2]Italy, [3]Netherlands, [4]Spain, [5]United Kingdom, [6]Germany)

11:50 INTENS-OL-7

Design and optimization of novel biphasic enzymatic membrane reactor for the intensification of VOC removal

K. Knozowska[1], P. Loulergue[1], L. Paugam[1], L.F. Dumée[2], A. Couvert[1] ([1]France, [2]United Arab Emirates)

12:10–13:15 Lunch

Club E

8:30–9:50 Integrated membrane processes | T6

Chair: Alicia An (Hong Kong)

8:30 IMP-OL-1

Integrating membrane distillation with photocatalytic steam splitting for solar-enhanced hydrogen and water co-generation

J. Sun, M.U. Farid, K.F. Chan, **A. An** (Hong Kong)

8:50 IMP-SOL-1

Integration of microfiltration into industrial-scale microalgae harvesting processes

S. Ragueneau, C. Cordier, A. Lange, L. Torres, P. Moulin (France)

9:00 IMP-SOL-2

Porous contactor membrane for catalytic H_2 gas release from liquid chemical storages

A. Volz, L. Fischer, M. Ulbricht (Germany)

9:10 IMP-OL-2

Integrated membrane distillation-selective electrodialysis for enhanced lithium recovery from atacama brine

R.B. Zegeye, R.A. Tufa, S. Santoro, M. Aquino, M. Inzillo, E. Curcio (Italy)

9:30 IMP-SOL-3

Advanced membranes based on jellyfish collagen and modified chitosan for liver tissue engineering

S. Morelli, A. Piscioneri, U. D'Amora, M. Oliviero, D. Coppola, A. Coppola, D. De Pascale, F. Crocetta, M.P. De Santo, M. Davoli, L. De Bartolo (Italy)

9:40 IMP-SOL-4

Scaling-up Electrodialysis with Bipolar Membranes (EDBM) for circular chemicals production

A. Culcasi, A. Filingeri, C. Cassaro, M. Nanfara, A. Tamburini, G. Micale, A. Cipollina (Italy)

10:00–10:30 Coffee break

10:30–12:10 Integrated membrane processes | T6

Chairs: G. Barbieri (Italy), L. Václavík (Czechia)

10:30 IMP-OL-3

Electrochemically-mediated separation of carbon monoxide

C. Koopman, J. Albertsma, M.A van der Veen, D.A. Vermaas (Netherlands)

10:50 IMP-OL-4

Investigating the dynamics of a hybrid closed-cycle reverse osmosis and adsorption process for PFAS removal

J. Roman, A.J.B. Kemperman, W.G.J. van der Meer, J.A. Wood (Netherlands)

11:10 IMP-OL-5

Membrane gas separation integrated in the process for the valorisation of H_2 and CO_2 containing streams

L. Marsico, A. Brunetti, **G. Barbieri** (Italy)

11:30 IMP-OL-6

Protein-bound uremic toxin clearance: a membrane-drug-dendrimer synergic system

P. Almeida, R.F. Pires, R. Bexiga, V.D.B. Bonifácio, **M. Faria** (Portugal)

11:50 IMP-OL-7

Could be fractionation of waste streams key to sustainability of ZLD? Case study of IEX column eluates purification

L. Václavík, V. Kúdelová, L. Šeda (Czechia)

12:10–13:15 Lunch

Terrace 2A

8:30–9:50 Membranes for CO_2 capture | T4

Chair: K.V. Peinemann (Germany), M. Alshurafa (United Kingdom)

8:30 CO2-KL-1

Carbon capture, membrane technology, and the fight against global warming

K.V. Peinemann[1,2], K. Ebert[2] ([1]Germany, [2]Saudi Arabia)

9:10 CO2-SOL-8

Interactions between molten carbonate salts and refractory ceramics in supported molten-salt membranes for carbon dioxide permeation

I.J. Ahmed, G.A. Mutch, I.S. Metcalfe (United Kingdom)

9:20 CO2-SOL-9

Gas separation performance and physical aging behavior of PIM-1 and cPIM-1 in thin film composite membranes on PAN support

M. Alshurafa[1], F. Pardo[2], A.B. Foster[1], M.P. Attfield[1], P.M. Budd[1] ([1]United Kingdom, [2]Spain)

9:30 CO2-SOL-10

MOFs/PDMS mixed matrix membranes for CO_2 separation in Li-air batteries

C. Puscalau, A. Laybourn, B. Tokay (United Kingdom)

9:40 CO2-SOL-11

Mimetic-core-shell design of UiO-66-NH_2 via molecular imprinting for boosting CO_2-ultrapermeable mixed metrix membranes

Z. Yuan[1,2], Z. Lin[1,2], K. Wang[1,2], V. Freger[2], X. He[1] ([1]China, [2]Israel)

10:00–10:30 Coffee break

10:30–12:10 Membranes for CO_2 capture | T4

Chairs: Z. Dai (China), S. McIntyre (United Kingdom)

10:30 CO2-OL-8

Advanced semi-alicyclic polyimide membranes for separation of by-product gases in steel industry

J.H. Kim (South Korea)

10:50 CO2-OL-9

A facile strategy to improve membrane CO_2 separation performances: non-solvent induced microstructure re-arrangement

J. Wei[1], W. Zhao[1], Y. Li[1], L. Deng[2], **Z. Dai** ([1]China, [2]Norway)

11:10 CO2-OL-10

Cellulose nanocrystals as a novel enzyme immobilization platform in biocatalytic gas-liquid membrane contactor

Y. Hartanto, A. Coppine, X. Xu, P. Luis (Belgium)

11:30 CO2-OL-11

CO_2 selective membranes for decarbonising maritime industry

T. Pettersen, E.M. Sandru, M.T. Guzman Gutierrez, **M. Sandru** (Norway)

11:50 CO2-OL-12

Investigating polymeric membranes for CCS under industrial conditions

S. McIntyre, A. Foster, P. Budd, D.R. Williams, P. Iacomi (United Kingdom)

12:10–13:15 Lunch

Congress hall

13:15–14:30 **EMS Council – General Assembly**

14:30–16:30 **Plenary session**

Chairs: P. Izák (Czechia), U. Kragl (Germany)

14:30 PL-2

Will membrane technologies solve the global water crisis?
B. Van Der Bruggen (Belgium)

15:30 PL-3

Membranes for energy efficient organic processes
A. Livingston (United Kingdom)

16:30–17:00 **Coffee break**

17:00–18:00 **Panel discussion**
Gas separation

The discussion on gas separation by membranes explores the innovative applications and advancements in membrane technology for the efficient separation of various gases from mixtures. The discussion aims to provide a comprehensive overview of the current state of membrane gas separation technology, highlighting its potential to revolutionize industrial gas separation processes while contributing to environmental sustainability.

18:00 **Closing ceremony**

Luboš Novák, *Honorary Chairman*

Enrico Drioli, *Honorary Chairman*

Pavel Izák, *Head of Scientific Committee*

Elena Tocci, *EMS President*