

Tuesday, 10<sup>th</sup> July 2018

**Poster session I: Gas and vapor separation, Mixed matrix membranes, Membrane reactors and bioreactors, Micro-and Ultrafiltration, Membranes for drinking and process water production, Membranes for wastewater treatment, Hybrid membrane processes, Modelling and simulation, Inorganic membranes, Membrane contactors, Facilitated transport.**

## Gas and vapor separation

**[11] Characterization of gas transport in polymers with NMR**

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**[45]. Preparation of bicontinuous metal organic framework membranes for gas separation**

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**[62]. MFI membrane applications in water rich and lean gas streams**

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**[98]. Thin-film composite membranes (TFC) based on PTMSP loaded with porous aromatic frameworks: study of aging**

*D.S.Bakhtin\*, L.A.Kulikov\*\*, S.A.Legkov\*, V.S.Khotimskiy\*, I.S. Levin\*, I.L.Borisov\*, A.L.Maksimov\*,\*\*, V.V.Volkov\*, E.A.Karakhanov\*\*, A.V.Volkov\**

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**[133]. Composite ionic liquid-Pebax® 2533 membranes with enhanced properties towards H<sub>2</sub>/CO simultaneous recovery**

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**[155]. Surface functionalized UiO-66/Pebax-based ultrathin composite hollow fiber gas separation membranes**

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**[163]. Microstructured hollow fibre dual phase molten salt-ceramic membranes for CO<sub>2</sub> separation**

*M. Kazakli\*, A. Gouveia Gil\*, G.A. Mutch\*, G. Triantafyllou\*, T. Li\*\*, B. Wang\*\*, K. Li\*\*, I.S. Metcalfe\**

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**[189]. Polyalkylmethylsiloxane membranes: enhanced C<sub>3</sub><sup>+</sup> hydrocarbon selectivity**

*E.A. Grushevenko, A.A. Knyazeva, D.S. Bakhtin, I.L. Borisov, A.V. Volkov*

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**[205]. New approaches to enhance the CO<sub>2</sub> selectivity of fast permeable gas separation membranes**

*Marius Sandru<sup>1</sup>, Per Stenstad<sup>1</sup>, Eugenia Sandru<sup>1</sup>, Taek Joong Kim<sup>1</sup>, Jing Deng<sup>2</sup>, Liyuan Deng<sup>2</sup>*

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**[208]. Facilitated transport membrane with amino acid salts as mobile carrier for CO<sub>2</sub> capture**

*Zhongde Dai, Jing Deng, Luca Ansaloni, Saravanan Janakiram, and Liyuan Deng\**

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**[214] Sorption and pervaporation study of mixture methanol/dimethyl carbonate on poly(etheretherketone) (PEEK-WC) membrane**

*Wenqi Li\*, Francesco Galiano\*\*, Figoli Alberto\*\*, Julien Estager\*\*\*, Damien P. Debecker\*\*\*\*, Patricia Luis\**

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**[235]. Applicability of PolyActive™ thin film composite membranes for CO<sub>2</sub> separation from C<sub>2</sub>H<sub>4</sub> containing multi-component gas mixtures at pressures up to 30 bar**

*K. Schuldt\*, J. Pohlmann\*, S. Shishatskiy\*, T. Brinkmann\**

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**[250]. Polyetherimide with ZIFs-fillers membranes for CO<sub>2</sub> selectivity**

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**[299]. Novel poly(ionic liquid)-based mixed matrix membranes for hydrogen purification**

*A. R. Nabais\*, J. G. Crespo\*, I. M. Marrucho\*\*, L. C. Tomé\*\*\*, L. A. Neves\**

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**[309]. Optimization and evaluation of non-porous membrane contactor for CO<sub>2</sub> capture using amine blend solvents**

*L. Ansaloni, V.E. Andreassen, H.K. Knuutila, L. Deng*

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**[323]. Interplay between nanostructure and water vapor transport in block copolymer membranes**

*Faheem Hassan Akhtar, Klaus-Viktor Peinemann*

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**[325]. A ground breaking polymer blend for CO<sub>2</sub>/N<sub>2</sub> separation**

*Saeed Mazinani\**, *Rouzbeh Ramezani\*\**, *Ahmad Taghzade Damanabi\*\*\**, *Siavash Darvishmanesh\**, *Bart Van der Bruggen\**

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**[342]. Microstructural investigation of La<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3-δ</sub> after long-term operation in the presence of CO<sub>2</sub>-rich atmosphere**

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**[351]. Experimental characterization and modelling of the sorption of CO<sub>2</sub>/CH<sub>4</sub> mixtures in thermally rearranged (TR) HAB-6FDA**

*E. Ricci\**, *F.M. Benedetti\**, *M.E. Dose\*\**, *M.G. De Angelis\**, *B.D. Freeman\*\**, *D.R. Paul\*\**

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**[353]. Matrimid®5218 dense membrane for the separation of azeotropic MeOH-MTBE mixtures by pervaporation**

*R. Castro-Muñoz\**, *\*\**, *\*\*\**, *F. Galiano\**, *V. Fila\*\**, *E. Drioli\**, *A. Figoli\**

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**[392]. Improvement of the gas separation performance in Claisen thermally rearranged (CTR) polymers**

*D. Meis\**, *A. Tena\**, *S. Neumann\**, *P. Georgopoulos\**, *T. Emmler\**, *S. Rangou\**, *S. Shishatskiy\**, *V. Filiz\**, *V. Abetz\**, *\*\**

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**[397]. Purification of flue gas by using the water condensing membrane**

*Andrea Žitková*, *Jiří Vejražka*, *Pavel Izák*

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**[402]. Gas diffusion characteristics as criteria of nonequilibrium state of amorphous glassy polymers**

*A. Alentiev*, *N. Belov*, *S. Chirkov*, *Yu. Yampolskii*

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**[420]. Enhanced selectivity of carbon molecular sieve membranes by an addition of iron compounds to the precursor**

*I. Kumakiri\**, *K. Tamura\**, *Y. Sasaki\*\**, *K. Tanaka\**, *H. Kita\**

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**[446]. Theoretical analysis of input errors for evaluation of vapour flux**

*L. Morávková*, *P. Dytrych*, *K. Machanová*, *Z. Petrusová*

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**[467]. Oriented-ZIF L/PEBAX MMMs for CO<sub>2</sub>/N<sub>2</sub> Separation**

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**[470]. Oxygen Mass Transfer in Oxygen/Membrane/Water Flow Systems**

*M. Faria\**, *C. Moreira\**, *V. Semião\*\**, *M. N. de Pinho\**

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**[504]. Metathesis and addition polynorbornenes bearing trialkoxysilyl groups: synthesis and gas permeation properties**

*D.A. Alentiev,<sup>a</sup> M.V. Bermeshev,<sup>a,b</sup> L.E. Starannikova,<sup>a</sup> M.P. Filatova,<sup>a</sup> Yu.P. Yampolskii,<sup>a</sup> E.Sh. Finkelshteina*

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**[511]. PEG-based membranes with dual cross-linking networks for enhanced CO<sub>2</sub> separation**

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**[527]. Polyvinylalcohol/Nanocellulose composite membranes for CO<sub>2</sub>-separation in flue gas**

*Ragne Marie Helberg, Jonathan Ø. Torstensen, Liyuan Deng*

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**[561]. CO<sub>2</sub>/H<sub>2</sub> separation using poly(ionic liquid)/ionic liquid composite membranes**

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**[571]. PBI mixed matrix hollow fiber membranes for pre-combustion CO<sub>2</sub> capture**

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**[589]. Pervaporation Membranes and Process for the Regeneration of TEG in Natural Gas dehydration**

*L. Ansaloni, K. Dalane, M. Ahmadi, N.T. Josefsen, E. Tabarizadeh, L. Deng*

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**[594]. Preparation and gas permeation properties of Ti-CHA zeolite membranes**

*S. Araki\*, H. Ishii\*, S. Imasaka\*\*, H. Yamamoto\**

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**[603]. Mechanically robust, plasticization resistant polyurethane membranes for gas separation**

*Ali Pournaghshband Isfahani, Behnam Ghalei, Easan Sivaniah, Morteza Sadeghi*

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**[605]. Enhanced CO<sub>2</sub> selectivity by polyethylene glycol-based polyurethane membranes**

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**[618]. Synthesis, gas permeability and diffusivity for novel polyetherimides with Me<sub>3</sub>C- and F<sub>3</sub>C-groups**

*N. Belov\*, R. Nikiforov\*, V. Ryzhykh\*, R. Chatterjee\*\*, S. Bisoi\*\*, A. G. Kumar\*\*, S. Banerjee\*\*, Yu. Yampolskii\**

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**[694]. Comparing separation performance of commercial ceramic and polymeric membrane for bioethanol dehydration**

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**[718]. New and effective vapor-phase membrane method of bioalcohols recovery**

*A.A. Kozlova\**, *M.G. Shalygin\*\**, *V.V. Teplyakov*, *S.Yu. Markova*

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**[753]. Recovery of n-butanol by pervaporation using polymer-ionic liquid composite membranes**

*M. Fallanza\**, *D. Echevarría\**, *C. Arregoitia\**, *D. Gorri\**, *I. Ortiz\**

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**[800]. Enhancing the separation efficiency of the membrane module for low-permeable component recovery by semi-batch pulsed retentate gas separation process**

*M.M. Trubyanov*, *S.V. Battalov*, *E.S. Puzanov*, *P.N. Drozdov*, *V.M. Vorotyntsev*, *I.V. Vorotyntsev*

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**[809]. Preparation of polyetherimide hollow fibre membrane with enhanced permeance**

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**[816]. New possibilities for the theory and practice of membrane gas separation in high purification of gases**

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**[817]. Experimental study of water and lower alcohols vapors diffusion in polymeric membrane materials**

*M.G.Shalygin\**, *A.A.Kozlova\*\**, *D.A.Syrtsova*, *S.Yu.Markova*, *O.R.Ryabova*, *V.V.Teplyakov*

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**[848]. Mixed-Matrix Thin Film Composite Membranes for CO<sub>2</sub>/N<sub>2</sub> Separation**

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**[854]. On-line monitoring of gases and vapours transport from complex feed streams through dense membranes using Mass Spectrometry**

*S.C. Fraga*, *J.G. Crespo* and *C. Brazinha*

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**[858]. Synthesis of bio-based molecules by CO<sub>2</sub> capture and conversion under enzymatic action**

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**[865]. Efficient hydrogen separation membranes based on graphene oxide membrane materials: Effect of modifications on gas transport**

*M. Lanč\**, *Z. Sofer\*\**, *D. Bouša\*\**, *J. Luxa\*\**, *V. Fila\*\*\**, *K. Fónod\**, *P. Číhal\**, *O. Vopička\** and *K. Friess\**

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**[890]. Multilayer hollow fiber membranes for removing CO<sub>2</sub> from flue gas – laboratory and pilot tests**

*Jakub Peter\**, *Zbyněk Pientka\**, *Robert Válek\*\**, *David Malý\*\**

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**[900]. Amorphization of metal organic frameworks inside gas separation membranes combined with fast, in-situ synthesis methods of mixed matrix membranes**

*J. Didden\**, *A. Kertik\**, *I.F.J. Vankelecom\**

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**[913]. Preparation and Transport Properties Polybenzimidazol Nanocomposite Membrane for Gas Separations**

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**[922]. MEMBER project. Advanced MEMBRanes and membrane assisted procESses for pre- and post- combustion CO<sub>2</sub> captuRe**

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## Mixed matrix membranes

**[83]. Effect of graphene lateral flake size on polymer of intrinsic microporosity thin film nanocomposite membranes**

*M Alberto<sup>1</sup>*, *R Bhavsar<sup>2</sup>*, *J M Luque-Allied<sup>1</sup>*, *L Gao<sup>2</sup>*, *G Szekeley<sup>1</sup>*, *S M Holmes<sup>1</sup>*, *A Vijayaraghavan<sup>3</sup>*, *P M Budd<sup>2</sup>*, *P Gorgojo<sup>1</sup>*

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**[149]. Preparation and characterization of dense membranes based metal organic networks (MOF- 5) for separation: aromatic-aliphatics mixtures**

*L. Aouinti\**, *A. Hamlil\**

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**[154]. Elaboration of novel PES/nanocomposites mixed matrix membranes**

*I. Ben Belgacem\**, *P. Loulergue\*\**, *H. Bouhamed\*\*\** and *S. Khemakhem\**

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**[216]. Advanced Mixed Matrix Membranes with Metal Organic Frameworks Supporting Ionic Liquids**

*Inês Ferreira\**, *Ana R. Nabais\**, *Rui P.P.L. Ribeiro\**, *José P.B. Mota\**, *Isabel A.A.C. Esteves\**, *Luís C. Silva\*\**, *Luísa A. Neves\**

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**[222]. Flux-enhanced PVDF mixed matrix membranes incorporating APTS-functionalized graphene oxide for membrane distillation**

*Sebastian Leaper<sup>1</sup>*, *Ahmed Abdel-Karim<sup>1,3</sup>*, *Bilal Faki<sup>1</sup>*, *Jose Miguel Luque-Allied<sup>1</sup>*, *Monica Alberto<sup>1</sup>*, *Aravind Vijayaraghavan<sup>2</sup>*, *Stuart M Holmes<sup>1</sup>*, *Nima Shokri<sup>1</sup>*, *Mohamed I. Badawy<sup>3</sup>*, *Patricia Gorgojo<sup>1</sup>*

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**[264]. Adsorptive Mixed Matrix Membranes for CO<sub>2</sub> Capture from Ambient Air**

*Jinguk Kim\**, *Daniel Wirawan\**, *Wong Him Cheng\**, *Hong Yee Low\**, *Mei Chee Tan\**

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**[282]. Effects of incorporating ionic liquids in cellulose acetate-SAPO-34 mixed matrix membranes for CO<sub>2</sub> separation**

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**[289]. Influence of controlled functionalization of mesoporous silica nanoparticles as tailored fillers for thin-film nanocomposite membranes on stability and desalination performance**

*Ahmed Abdelsamad, Ahmed S.G. Khalil, Mathias Ulbricht*

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**[335]. Effect of amine functionalization of CuO and ZnO nanoparticles used as additives on the morphology and permeation properties of polyethersulfone ultrafiltration membranes**

*Nazanin Nasrollahi\*, Soheil Aber\*\*, Vahid Vatanpour\*\*\*, Niyaz Mohammad Mahmoodi\*\*\*\**

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**[389]. Preparation and characterization of mixed matrix membranes based on a polyamide-imide (Torlon®) and ZIF-8 for gas separation at different temperatures**

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**[436]. Metal organic framework MOF-76(Y) based mixed matrix membranes and their gas separation application**

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**[451]. Ultrafiltration membrane composites incorporating MOF@GO with highly improved organic dye rejection performances**

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**[508]. Effect of Ionic liquids on nanocellulose membranes for CO<sub>2</sub> capture**

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**[509]. Graphene oxide embedded in PES layers deposited on a UF PES/PVP membrane to enhance its performances in desalination**

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**[513]. Mixed matrix membranes comprising of BioMOF-1 in Polysulfone matrix for CO<sub>2</sub> separation**

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**[532]. Modification of Nafion membrane with aligned aminosiloxane-functionalized Co<sub>3</sub>O<sub>4</sub>/PW<sub>12</sub> nanoparticles for direct methanol fuel cell**

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**[535]. H<sub>2</sub>-selective Mixed Matrix Membranes based on PPO and ZIF-8**

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**[614]. Carbon capture capable membranes through tuning of zirconium-MOF mixed matrix membranes**

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**[667]. Mixed-Matrix Membranes Utilizing Highly CO<sub>2</sub> Selective Microporous Metal Imidazolate Framework (MMIF)**

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**[677]. Mixed Matrix Membranes based on PPO and graphene for gas separation**

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**[778]. Reduction of PIMs physical aging by the presence of MOFs**

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**[792]. Size-selective Mixed Matrix Membranes based on PPO and Zeolite 3A: effect of chemical modification and temperature**

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**[894]. ZIF-71 Filled Mixed Matrix Membranes for Gas Separation**

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**[895]. Preparation and Gas Permeability Properties of PI/Zr-Imidazolates Mixed Matrix Membranes**

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## Membrane reactors and bioreactors

**[81]. High catalytic efficiency of gel-trapped palladium nanoparticles in catalytic polymeric membranes**

*M.López-Viveros\*, Y.Gu\*, C.Emin\*, I. Favier\*\*, M. Gómez\*\*, J-F.Lahitte\*, J-C.Remigy\**

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**[447]. Experimental test of zeolite membrane reactor for methanol synthesis**

*R. Raso\**, *J. Lasobras\**, *J. Herguido\**, *I. Kumakiri\*\**, *M. Menéndez\**

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**[615]. Optimization of a magnetically induced vibration (MMV) system for fouling control in a membrane bioreactor (MBR)**

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**[674]. Porphyrin-functionalized polyvinylidene fluoride membrane for a visible light degradation in a continuous flow**

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**[720]. Evaluation of a forward osmosis to combined microalgae dewatering and wastewater reuse**

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**[744]. Single-pass organic dye degradation by TiO<sub>2</sub>-coated photocatalytic AAO membranes**

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**[908]. Filtration process performance in a Membrane Anaerobic Co-Digester (M-AcoD)**

*J.F. Mora-Sanchez\**, *A. Robles\*\**, *M.V. Ruano\*\**, *J. Ribes\*\**, *G. Noriega-Hevia\**, *R. Serna-García\*\**, *J. Ferrer\**

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**[926]. Comparison of bacterial communities of activated sludge and membrane biofilm of MBRs treating landfill leachates**

*J.L. Alonso\**, *J. Fernández-Navarro\**, *L. Moreno-Mesonero\**, *E. Zuriaga-Agustí\*\**, *J.A. Mendoza-Roca\*\**, *Y. Moreno\**, *C. Alvarez-Requena\*\*\**

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**[931]. Mini-reactors for the generation of high value-added products (MALTA project)**

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## Micro-and Ultrafiltration

**[43]. Performance of Spiral Ultrafiltration Membrane and Dynamic Modelling**

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**[59]. Treatment of effluents from oyster farm by membrane process**

*C. Cordier\**, *C. Stavrakakis\*\**, *B. Dupuy\*\**, *M. Papin\*\**, *P. Sauvade\*\*\**, *F. Coelho\*\*\**, *P. Moulin\**

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**[112]. Effect of the Surface Charge of Monodispersed Particulate Foulants on Cake Formation**

*Qi Han<sup>a, b, c</sup>*, *Weiyi Li<sup>a, b</sup>*, *Thien An Trinh<sup>a, b</sup>*, *Anthony G. Fane<sup>b</sup>*, *Jia Wei Chew<sup>a, b, \*</sup>*

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**[129]. Influence of feed pH and membrane material on protein fractionation of brewer's spent yeast hydrolysate**

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**[150]. Self-Assembled Hybrid Isoporous Membranes with Enhanced Antifouling and Antibiofouling Capabilities**

*Rahul Shevate*, *Mahendra Kumar* and *Klaus-Viktor Peinemann*

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**[258]. Ultrafiltration applied to concentrate lactose-free milk**

*R. Dos R. M. Azevêdo\**, *S. A. Moreira\*\**, *A. L. Carvalho\**, *H. L. Malta\**

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**[296]. Residence Time of Milk Concentrates during Rinsing of Spiral Wound Membranes (UF) with Water**

*I. Kieferle*, *S. Benteler*, *M. Hartinger*, *U. Kulozik*

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**[390]. A novel approach to Liquid Liquid Porometry (LLP) for the characterisation of ultrafiltration membranes**

*A. Serner\**, *I. Kienbaum*, *I. Struzynska-Piron*, *K. van der Kamp\**, *D. Pattyn\*\**, *A. Odena\*\**

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**[398]. Direct filtration of brackish surface water with ceramic and polymeric membranes in RO plants**

*J. Arévalo*, *J.M. Viñas*, *M. Burgos*, *F. Rogalla*, *V.M. Monsalvo*

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**[399]. Microfiltration and ultrafiltration in diafiltration mode to obtain bioactive immunoglobulin rich whey from immune milk**

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**[494]. Surface zeta potential analysis of hollow fibre membranes**

*T. Luxbacher\**, *V. Petek Regorsek\*\**, *I. Petrinc\*\**, *H. Buksek\*\**, *I. Jesswein\*\*\**, *T. Schiestel\*\*\**

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**[524]. Membrane separation of anthocyanins and sugars in extracts of chokeberry pomace**

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**[547]. New hydrophilic PVDF ultrafiltration hollow fiber membrane with durable hydrophilicity for water and wastewater treatment**

*Olivier LORAIN\**, *Sébastien MARCELLINO*, *Maxime ZEVACO*, *Isabelle DUCHEMIN*, *Jean Michel ESPENAN*

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**[712]. Ultrasounds cleaning of inorganic membranes fouled by proteins**

*M.J. Luján-Facundo*, *J.A. Mendoza-Roca*, *B. Cuartas-Uribe*, *S. Álvarez-Blanco*

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**[775]. Rheological properties of alginate fouling layers developing during ultrafiltration**

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**[789]. Impact of skim milk thermal history on microfiltration performance**

*M. Granger-Delacroix\**, *N. Leconte\**, *F. Garnier-Lambrouin\**, *F. Le Goff\*\**, *M. Van Audenhaege\*\**, *G. Gésan-Guiziou\**

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**[916]. Properties of biodegradable poly(lactic acid)/nanozeolite based ultrafiltration membranes for water treatment**

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**[930]. Ultrafiltration of oil-in-water emulsions at several pH in a dead-end unit**

*G. Gutiérrez*, *M. Matos*, *A. Cambiella*, *S. Álvarez*, *L. Pérez*, *J. R. Álvarez*, *S. Luque*

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**[932]. Conventional tertiary treatment versus ultrafiltration for wastewater tertiary treatment**

*F.J. Martínez-Francisco*, *J.A. Mendoza-Roca*, *J. Lora-García*, *M.C. Vincent-Vela*

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## Membranes for drinking and process water production

**[15]. A simple and new approach to determine the structural parameter of forward osmosis membrane supports**

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**[28]. Innovative membrane concepts enabled by specialty polymers: from optical detection to water filtration**

*P. Campanelli\**, *E. Di Nicolò\**

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**[33]. Electrodialysis Reversal and Nanofiltration applied to the Sinos River water treatment**

*L. E. Bacher\**, *C. D. Venzke\**, *N. E. Lauffer\**, *F. M. de Souza\**, *M. A. S. Rodrigues\*\**

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**[147]. A case of study about the nanofiltration and reverse osmosis for the retention of some pharmaceutical products present in Doce river in Brazil**

*A.F.S. Foureaux\**, *V.R. Moreira\*\**, *Y.A.R. Lebron\*\**, *E.O. Reis\**, *L.B.M. Barros\**, *L.V.S. Santos\*\**, *M.S. Amaral\**, *W.G. Moravia\*\*\**, *L.C. Lange\**

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**[194]. Integration of functional particles into hollow fiber membranes for the separation of micropollutants**

*C. Rösler\**, *T. Schiestel\**, *W. Wietschorke\*\**, *D. Oechsle\*\**, *M. Jeske\*\*\**, *W. Zhang\*\*\**

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**[195]. Flexible integration of functional groups into hollow fiber membranes for the separation of micropollutants and heavy metals**

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**[234]. Eco-design for membrane elaboration and drinking water process**

*F. Prézélus\**, *L. Barna\*\**, *C. Guigui\*\**, *J.-C. Remigy\**

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**[347]. Hydrophilic Polydopamine/graphene oxide interlayer on polysulfone support layer for thin film nanocomposite forward osmosis membrane**

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**[406]. Nules BWRO Plant. Performance of the water quality and energy efficiency**

*J. García Castillo\**, *M. Ortiz Gómez\**

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**[502]. Removal of pesticides from aqueous solution using aquaporin FO membrane**

*Mahdi Nikbakht Fini\**, *Henrik Tækker Madsen\*\**, *Jens Muff \**

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**[754]. Pushing intensification of membrane distillation: materials vs process potentialities**

*Deisy Mejia\**, *Cecile Lemaitre\**, *Eric Favre\**, *Christophe Castel\**

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**[759]. Hybrid Hollow Fibre NF-Calcite Contactor as a Point of Entry Treatment Method to Remove Mn, Fe, Hardness and NOM from domestic Groundwater Supplies**

*M. Haddad\**, *T. Okame\*\**, *P. R. Bérubé \*\*\**, *B. Barbeau\**

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**[763]. Polyamide/CNT Thin Film Nanocomposite Membranes for Simultaneous Boron Removal and Desalination of Seawater**

*A. Güvensoy\**, *S. Kürklü-Kocaoglu\*\**, *S. Velioglu\**, *M. G. Ahunbay\**, and *S. B. Tantekin-Ersolmaz\**

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**[810]. Interplay of process and membrane materials properties on reverse osmosis performances: towards maximal module effective permeance**

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**[882]. Responsible reduction of nitrates in the comprehensive water cycle**

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## Membranes for waste water treatment

**[13]. Membrane Distillation to the Treatment of Reverse Osmosis Brine**

*C. D. Venzke\**, *A. Giacobbo\**, *M. A. S. Rodrigues\*\**, *A. M. Bernardes\**

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**[23]. Coupling nanofiltration with Fenton oxidation for pharmaceutical abatement in wastewater treatment**

*Mattia Giagnorio\**, *Andrea Gallo\**, *Marco Minella\*\**, *Davide Vione\*\**, *Alberto Tiraferri\**

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**[85]. Valorization of ammonium from urban waste waters as liquid fertilizers by integration of liquid-liquid membrane contactors and electro dialysis**

*X. Vecino\**, *M. Reig\**, *B. Bhushan\**, *J. López\**, *C. Valderrama\**, *O. Gibert\*\**, *J.L. Cortina\*\**

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**[104]. Integration of diffusion dialysis for sulphuric acid recovery from metallurgical process streams**

*J. Lopez\**, *M. Reig\**, *X. Vecino\**, *C. Valderrama\**, *O. Gibert\*\**, *J.L. Cortina\*\**

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**[117]. Comparison of selective and non-selective membrane for potassium recovery from vinasse by electro dialysis**

*Laura B. M. Barros\**, *Laura H. Andrade\**, *Miriam C.S. Amaral\**, *Paulo V. Cunha\**

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**[118]. Membrane bioreactor powder activated carbon hybrid system in the treatment of reverse osmosis concentrate**  
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**[303]. Impact of operational conditions on rejection of trace organic compounds in forward osmosis using Aquaporin-based Hollow Fiber membranes**

*S. Braekvelt\*, S. Hussain\*\*, M. Friis Andersen\*, K. Bester\*\*\*, U. E. Bollmann\*\*\*, I. Petrushina\*\*\*\*, V. Sanahuja-Embuena\*\*\*\*\*, J. Vogel\*, C. Hélix-Nielsen\*\*\*\*\**

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**[315]. RO and EDR processes for petrochemical wastewater treatment**

*C. D. Venzke\*, A. Giacobbo\*\*, M. N. de Pinho\*\*\*, M. A. S. Rodrigues\*, A. M. Bernardes\*\**

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**[316]. Municipal wastewater tertiary treatment by reverse osmosis**

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**[319]. Nanofiltration and Advanced Oxidation Process for textile wastewater post-treatment**

*F. L. C. Lisboa\*, A. P. B. Araújo\*, E. Smolders\*, L. M. Oliveira\*, G. G. Melo\*, S. B. Oliveira\*, C. B. Alvim\*\*, M. C. S. Amaral\*\*, R. B. P. Marcelino\*\*, B. C. Ricci\*, L. H. Andrade\**

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**[320]. Evaluation of recycled RO performance for textile wastewater post-treatment**

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**[334]. Removal of a carbamazepine ciprofloxacin and ibuprofen mix on a combined process of a membrane bioreactor with advanced oxidation processes for wastewater treatment**

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**[404]. Interfacial polymerization study for recycling RO membranes in FO wastewater treatment**

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**[434]. Fenton oxidation of phenol in a tubular packed ceramic membrane reactor**

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**[476]. Preliminary study about the naproxen recovery by emulsion liquid membranes**

*T. A. Razo-Lazcano\**, *M. P. González-Muñoz\**, *M. Ávila-Rodríguez\**

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**[487]. NF membrane flux enhancement during two-phase olive mill wastewater phenolic fraction recovery and reclamation**

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**[489]. About sub-boundary operating conditions as efficient process control tool during purification of agro-industrial effluents**

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**[497]. The effect of membrane material on fouling behavior in anaerobic membrane bioreactor treating domestic wastewater**

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**[501]. Low Pressure Reverse Osmosis and Electrodialysis in the Treatment of Landfill Leachate**

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**[525]. Removal of Heavy Metals by Ultrafiltration Assisted with Chitosan or Carboxy-methyl Cellulose**

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**[533]. Novel polyethersulfone/phosphotungstic acid functionalized Co<sub>3</sub>O<sub>4</sub> nanocomposite ultrafiltration membrane for oil/water emulsion separation**

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**[536]. Ammonia transfer in forward osmosis during operation to concentrate digester centrate**

*K. C. Kedwell\**, *C. A. Quist-Jensen\**, *M. K. Jørgensen\**, *M. L. Christensen\**

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**[541]. Preparation of Photocatalytic Membranes for Water Purification Using a Solvent Free Sol-Gel Process**

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**[549]. Effect of feed pretreatment in direct contact membrane distillation**

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**[552]. The development of a novel metal nanocomposite PSF membrane for use in wastewater treatment**

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**[554]. Pilot scale membrane filtration and photocatalytic membrane treatment of olive mill wastewaters**

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**[621]. A free-standing CNT membrane for treating oily wastewater**

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**[697]. Pd/Cu-loaded polymer porous hollow fiber membranes for removal of nitrates from water**

*M. I. Kostyanaya, I. V. Petrova, V. V. Volkov, A. B. Yaroslavtsev*

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**[703]. Rejection of the oxyanion forms of Se(IV) and Se(VI) by tight ultrafiltration membranes alone and assisted by chitosan addition**

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**[707]. Flue-gas desulfurization (FGD) wastewater reclamation by integrated membrane process**

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**[721]. Recovery of phenolic compounds present in the residual fermentation brine from table olive production by an integrated membrane process**

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**[724]. Characterization of ZW-1 ultrafiltration membrane and its application for direct municipal wastewater treatment**

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**[740]. Optimising membrane performance for anaerobic urban wastewater treatment**

*A. Robles\*, J.B. Giménez\*, F. Durán\*\*, J. Serralta\*\*\*, F. Rogalla\*\*, J. Ferrer\*\*\*, A. Seco\*, J. Ribes\**

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**[773]. Environmental-friendly solvent PolarClean® to replace polar aprotic solvent for PVDF, PSF, PES and CA membrane preparation**

*HH Wang\*, JT Jung\*, J. F. Kim\*, E Drioli\* \*\*, YM Lee\**

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**[791]. Recovery of valuable compounds from dairy wastewaters using membrane technology**

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**[801]. Integrated electrocoagulation – ultrafiltration process for treating poultry processing wastewaters**

*K. Sardari, Y. Chiao, S. R. Wickramasinghe*

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**[806]. Direct Contact Membrane Distillation (DCMD) applied to gold mining effluent treatment**

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**[849]. Membrane process for water recycle and lupanine recovery on lupin bean processing: preliminary results**

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**[851]. Nanofiltration applied for the treatment of cheese, winery and olive oil wastewaters in a region of Portugal**

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**[863]. Mycofilm development in a Membrane-Aerated Biofilm Reactor**

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**[864]. Permeation of volatile fatty acids in membrane distillation of high protein loaded waste water from meat processing**

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**[877]. Experimental analysis of plate-and-Frame forward osmosis membrane elements**

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**[893]. Treatment of table olive wastewaters by means of a low fouling nanofiltration membrane**

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**[901]. Removal of pharmaceutically active compounds from wastewater treatment plants by a tertiary treatment method**

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**[914]. Study of NF/RO processes to remove pharmaceutically active compounds from wastewater treatment effluents**  
*Carlos Carbonell-Alcaina\**, *María-Isabel Iborra-Clar\**, *María-Isabel Alcaina-Miranda\**, *Lucia Martella\*\**, *Jorge García-Ivars\**, *Sergio Barredo-Damas\**, *Alicia Iborra-Clar\**

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## Hybrid membrane processes

**[92]. Integration of selectrodialysis and ion-exchange for copper and zinc recovery from metallurgical process streams containing arsenic**

*M. Reig\**, *X. Vecino\**, *M. Hermassi\**, *J. López\**, *C. Valderrama\**, *O. Gibert\*,\*\**, *J.L. Cortina\*,\*\**

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**[109]. A study of hybrid processes for carbon capture**

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**[110]. Highlighting the benefits of using state-of-the-art membranes in the propylene production through process optimization**

*R. Zarca\**, *A. Ortiz\**, *D. Gorri\**, *L.T. Biegler\*\**, *I. Ortiz\**

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**[237]. A sustainable remineralisation process for hybrid water treatment**

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**[246]. Evaluation of removal of dissolved organic matter of petroleum refinery effluent in a hybrid uf-osmotic membrane bioreactors by EEMs analysis**

*Clara B. Alvim\**, *Priscila B. Moser\**, *Bárbara C. Ricci\**, *Miriam C.S. Amaral\**

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**[249]. Concentration by membrane filtration before wet air oxidation for full intensified seawater and wastewater treatment**

*M. Monnot\**, *C. Cordier\**, *S. Lefèvre\*\**, *M. Desdouits\*\*\**, *S. Le Guyader\*\*\**, *C. Stavrakakis\*\*\**, *P. Moulin\**

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**[261]. Towards Scaling-Free Design: Deep Concentration of Produced Water by Integrated Membrane Process**

*Sigui Hu<sup>1</sup>*, *Shuaifei Zhao<sup>2</sup>*, *Xiaofei Zhang<sup>3,4</sup>*, *Lei Song<sup>3,4</sup>*, *Yilin Wang<sup>3,4</sup>*, *Yang Zhang<sup>1,5\*</sup>*

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**[312]. Controlling the structure of PVDF-TiO<sub>2</sub> membranes prepared by nonsolvent induced phase separation**

*D.T. Tran, J-P. Mericq, J. Mendret, S. Brosillon, C. Faur*

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**[575]. PAC-UF treatment for micropollutant removal in municipal wastewater treatment**

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**[580]. Integration of forward osmosis and membrane distillation for wastewater treatment focused in pharmaceutical removal**

*B.C.Ricci\* \*\*, C. Mancel\*\*\*, C. Q. Celestino\*\*, I. L. C. Cunha\*\*, M. R. Silva \*\*, L. D. Miranda\*\*, M. T. C. Frias\*\*, C. B. Alvim\*, L. H. Andrade\*\*, M. C. S. Amaral\*\**

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**[923]. Confinement of photocatalytic particles in a slurry photocatalytic membrane reactor using ceramic ultrafiltration membranes**

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## Modelling and simulation

**[27]. Up-scaling dead-end microfiltration processes**

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**[44]. 'Pervamodel' enables optimization of single and multichannel pervaporation system design**

*M. Sarić\*, H.M. van Veen, Y.C. van Delft*

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**[46]. Kinetic Investigations of the Crosslinking of Cellulose Membranes with Bifunctional Epoxides**

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**[132]. Membrane formation by phase inversion in industrial scale - techniques to gain process insight**

*J. Schwellenbach\*, M. Hoehse\*, V. Guschin\*\*, B. Hansmann\**

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**[162]. Modelling mixed gas sorption in glassy polymers for CO<sub>2</sub> capture from gaseous streams**

*E. Ricci, E. Tacchini, M. G. De Angelis*

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**[173]. A rigorous approach for the reliable description of gas sorption thermodynamics in glassy Cellulose Acetates**

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**[174]. Combined Membrane and Thermal Desalination Processes for the Treatment of Industrial Brines**

*M. Micari\*, M. Moser\*, B. Fuchs\*, M. Bevacqua\*\*, A. Tamburini\*\*, A. Cipollina\*\*, G. Micale\*\**

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**[200]. Predicting the evolution of performances during nanofiltration of ionic solutions in concentration and diafiltration modes**

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**[206]. Modelling of gas flow through microporous media: application for membrane characterization.**

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**[253]. Mathematical Modeling of Hollow Fiber Membrane Module for Multicomponent Gas Separation Using Orthogonal Collocation**

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**[324]. Multi-scale modelling of proteins fouling in membrane based processes**

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**[326]. The Relevance of Critical “Liquid Entry Pressure” in Membrane Distillation**

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**[341]. Modelling of the transfer mechanisms of a protein during its ultrafiltration in hydro-alcoholic media**

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**[350]. Atomistic simulation of gas diffusion and sorption in CO<sub>2</sub>-polystyrene systems**

*E. Ricci\*, N. Vergadou\*\*, G. Vogiatzis\*\*\*, M.G. De Angelis\*, D.N. Theodorou\*\*\*\**

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**[360]. Modelling humid gas permeability in perfluorosulfonic acid Membranes**

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**[365]. A thermodynamic model for the prediction of mixed gas transport and solubility in glassy polymers**

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**[395]. Effect of membrane initial state on the pH of desalinated solution in the course of neutralization dialysis process**

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**[431]. Mechanical-fluid dynamics coupled model for profiled Ion Exchange Membranes design**

*G. Battaglia\*, M. Ciofalo\*\*, A. Cipollina\*\*, A. Di Matteo\*, L. Gurreri\*\*, A. Pirrotta\*, \*\*\*, A. Tamburini\*\*, G. Micale\*\**

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**[433]. Prediction of Plasticization Resistance of Gas-Separation Polymers via Atomistic Simulations**

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**[439]. Modeling and simulation of photovoltaic solar energy electro dialysis with bipolar membranes**

*M. Herrero-Gonzalez*, *G. Diaz-Sainz*, *A. Dominguez-Ramos*, *R. Ibañez*, *A. Irabien*

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**[479]. Effect of fibre packing density on shear stress induce by pulse bubble aeration: CFD modelling comparison with experiments**

*Elham Radaei\**, *Xuefei Liu\**, *Giuseppe Merendino\*\**, *Francisco Trujillo\**, *Pierre Berube\*\*\**, *Greg Leslie\**

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**[728]. CO<sub>2</sub>-Induced Plasticization of PIM-1 Membranes**

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**[731]. Efficient use of steam as sweep in facilitated transport membrane processes from post-combustion carbon capture**

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**[748]. Molecular simulation of ionic liquids as gas separation media**

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**[749]. Simulation of dynamic ultrafiltration using a state-space model**

*V. H. Grisales Díaz\**, *O. A. Prado-Rubio\*\**, *M. J. Willis\**, *M. von Stosch\**

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**[760]. Antibacterial Activity of Nanomaterials: Computer Simulations of Physical Contacts between Nanoparticles and Cell Membrane**

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**[807]. Simulation of the radial membrane gas separation module for hybride processes in Aspen Plus**

*M.M. Trubyanov*, *S.V. Battalov*, *E.S. Puzanov*, *A.A. Kozlova*, *P.N. Drozdov*, *I.V. Vorotyntsev*

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**[822]. Multiparametric mathematical model for optimization of unsteadystate membrane gas separation with pulsed retentate mode**

*T.S. Sazanova*, *M.M. Trubyanov*, *S.V. Battalov*, *E.S. Puzanov*, *V.M. Vorotyntsev*, *P.N. Drozdov*, *I.V. Vorotyntsev*

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**[855]. Recovery of gas transport properties in glassy membranes using the concept of instantaneous time-lag**

*H. Wu\**, *N. O. Usifoh\**, *J. Thibault\**, *B. Kruczek\**

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**[857]. Prediction of gas mixture transport through zeolitic membranes based on a limited number of pure gas permeation experiments**

*David Carter\**, *Dana Li\**, *Anwuli Omenogor\**, *F. Handan Tezel\**, *Boguslaw Kruczek\**

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**[867]. New approach to the membrane scaling risk assessment – numerical simulation of the CaSO<sub>4</sub> scaling prevention**

*M. Turek\**, *K. Piotrowski\*\**, *P. Dydó\**, *K. Mitko\**, *E. Laskowska\**, *A. Jakóbi-Kolon\**

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**[892]. Evaluation of Tortuosity as a Geometrical Parameter to quantify the 3D Connectivity of a Membrane Structure**

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**[905]. Viscoelastic effects on the response of electroelastic materials**

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**[919]. CFD study on the influence of water transpiration on flow and mass transfer in channels with bipolar membranes**

*L. Gurreri*, *M. Di Liberto*, *L. Scelsi*, *A. Tamburini*, *A. Cipollina*, *M. Ciofalo*, *G. Micale*

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## Inorganic membranes

**[36]. Development of porous ceramic substrates for zeolite membranes**

*Hirokazu Watanabe*, *Tomokazu Eda*, *Yuko Nishida* and *Keita Miyajima*

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**[58]. Characterization Of Silicon Carbide (SiC) Membranes**

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**[169]. Effect of pore size, surface coating material and electrolyte in the diffusive transport across ceramic ALD-coated nanoporous alumina membranes**

*L. Gelde\**, *M<sup>a</sup>.V. Martínez de Yuso\*\**, *V. Romero\**, *V. Vega\*\*\**, *A.S. González\*\*\*\**, *V.M. Prida\*\*\*\**, *B. Hernando\*\*\*\**, *J. Benavente\**

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**[537]. Elaboration and characterization of flat ceramic microfiltration membrane made from natural Moroccan kaolinite. Application for pretreatment of seawater desalination**

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**[578]. Wastes from industrial processes introduced as chamottes in ceramic membranes**

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**[595]. Pervaporation of ethyl acetate/ethanol mixture using hydrophobic silica membrane**

*M. Nakata\*, A. Okabe\*, S. Araki\*, H. Yamamoto\**

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**[596]. Separation of methanol from organic mixtures using CHA type zeolite membranes**

*Yuto Okubo\*, Hitomi Miyamoto\*, Satoshi Imasaka\*, Sadao Araki\*, Hideki Yamamoto\**

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**[776]. Electrophoretic Nuclei Assembly for Crystallization of High Performance Membranes on Unmodified Supports**

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**[852]. Synthesis of self-supported geopolymeric membrane from waste ashes**

*Amir Naveed, Saeed Gul*

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**[876]. Robust Alumina Hollow Fiber Membranes and Their Applications in Harsh Environment**

*Young Hoon Cho, Seongmin Jeong, Sung-Joong Kim, Yeojin Kim, Jeong Kim, Hosik Park, Pyung Soo Lee, You-In Park, Seung-Eun Nam*

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## Membrane contactors

**[29]. Liquid breakthrough of hydrophobic membranes: a novel method of characterization at high temperature**

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**[30]. Liquid breakthrough of hydrophobic membranes: a study of the Temperature dependency**

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**[31]. Characterization of multilayer hydrophobic ceramic membranes for sweeping gas membrane distillation**

*M. K. Fawzy\*, F. Varela-Corredor, S. Bandini*

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**[84]. 3D printed membranes for enhanced oil-water separation**

*A. Thalib, J. Chew, D. Mattia*

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**[91]. Ammonia recovery from urban treated wastewater by using hollow fiber liquid-liquid membrane contactors**

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**[230]. Porous and composite hollow fiber membranes for ethylene/ethane separation in gas-liquid membrane contactor**

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**[308]. Effect of absorbent viscosity on the performance of non-porous membrane contactor for CO<sub>2</sub> separation**

*L. Ansaloni, H.K. Betten, H.K. Knuutila, L. Deng*

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**[359]. Broadening the applications of membrane distillation towards high salinity brines – from lab to pilot scale**

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**[429]. Comparison of harvesting by membrane filtration and permeate treatment performances for different microalgae systems**

*CF Galinha\*, J Monte\*\*, J Bernardo\*\*, M Cadima\*\*, M Sá\*, B Cristovão\*\*, V Pereira\*\*, C Brazinha\*, JG Crespo\**

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**[496]. Purification of anaesthetic gases using gas-ionic liquid membrane contactors**

*C. F. Martins\*, L. A. Neves\*, C. A. M. Afonso\*\*, I. M. Coelho\*, J. G. Crespo\**

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**[608]. Recovery of uranium and other valuable metals from phosphate rocks using the membrane contactor**

*A. Miśkiewicz, K. Kiegiel, D. Gajda, G. Zakrzewska-Koźtuniewicz*

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**[631]. Harnessing clean water from power plant emissions using membrane condenser technology**

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**[737]. Membrane distillation for juice concentration in the food industry**

*R.J.M. Creusen, N.J.M. Kuipers, W.G.J.M. van Tongeren, J.G.H. Brouwer*

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**[796]. Membrane-based liquid extraction as a key technology for secondary zinc recovery from spent pickling acids**

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**[831]. Reactive extraction in membrane contactors for *in situ* product recovery of biobased 3-hydroxypropionic acid**  
*Florian Chemarin<sup>1,2</sup>, Marwen Moussa<sup>1\*</sup>, Ana Karen Sanchez-Castaneda<sup>1</sup>, Cristian Trelea<sup>1</sup>, Violaine Athès<sup>1</sup>*

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## Facilitated transport

**[301]. Transport of Kraft lignin and lignosulphonates through supported ionic liquid membranes**

*R. Abejón, S. Lanza, J. Rabadán, A. Garea, A. Irabien*

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**[374]. Nafion membranes for propylene/propane separation using AgBF<sub>4</sub>/BMImBF<sub>4</sub> system**

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**[413]. Acid Orange 6 removal from aqueous solutions by emulsion liquid membranes using a facilitated counter-transport mechanism**

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**[506]. Hybrid facilitated transport membranes containing GO-based nanoplatelets for CO<sub>2</sub> separation**

*S. Janakiram\*, Z. Dai\*, L. Ansaloni\*, H. B. Park\*\*, L. Deng\**

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\*\*Department of Energy Engineering, Hanyang University, South Korea

**[653]. Supported ionic liquid membranes applied to metal ions recognition: study of membrane impregnation and stability**

*G. Zante\*, \*\*, A. Masmoudi\*, M. Boltoeva\*, R. Barillon\*, D. Trébouet\**

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**[709]. Development and application of passive samplers based on polymer inclusion membranes for evaluating the fate of toxic metals in Wetlands**

*N M Motsoane\*, H Richards, \*\*L Chimuka\*\**

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**[765]. Polymer inclusion membranes containing different ionic liquids as carriers for the transport of As in natural waters**

*R. Vera\*, E. Antico\*, C. Fontàs\**

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Wednesday, 11<sup>th</sup> July 2018

**Poster session II: Membrane formation and surface modification, Membrane fouling and ageing, Nanofiltration and Reverse Osmosis, Electrochemical membrane processes, Membranes for energy conversion and storage, Fuel cells and batteries, Nanotechnology and membranes, Emerging membrane science and technology, Biomedical membrane applications, Process intensification and economic analysis, Membrane module development, Osmotic membrane contactors.**

## Membrane formation and surface modification

### [14]. Modelling of porous polymer membrane formation

*Manuel Hopp-Hirschler\**, *Ulrich Nieken\**

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### [22]. Sulfonated polysulfone-based membranes for forward osmosis with highly hydrophilic and stable support layers

*D. Grinic\**, *M. Giagnorio\**, *M. Sangermano\*\**, *A. Tiraferri\**

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### [67]. Examining the phase separation behaviour of polymer solutions for the production of macroporous membranes via NIPS

*C. Kahrs\**, *\*\**, *J. Schwellenbach\*\**, *M. Metze\*\**, *B. Hansmann\*\**

\*Institute of Technical Chemistry, Leibniz University Hannover, Germany

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### [74]. Investigation of the liquid film retention in slippery liquidinfused membranes (SLIMs)

*H. Bazyar\**, *S. Porada\*\**, *R. G. H. Lammertink\**

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### [75]. PHAs polymers for the development of new membrane materials with controlled structure

*P. Tomietto<sup>a,b</sup>*, *P. Loulergue<sup>b</sup>*, *L. Paugam<sup>b</sup>*, *J.-L. Audic<sup>a,b</sup>*

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### [138]. Polyacrylonitrile electrospun nanofiber based membranes for air filtration

*Riyadh Al-Attabi<sup>1,2,3</sup>*, *Yosry Morsi<sup>1</sup>*, *Jürg A. Schütz<sup>4</sup>*, *Ludovic F. Dumée<sup>3</sup>*

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3 Middle Technical University, Al-Zafaraniyah, Iraq

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### [151]. Silica nanotemplate/PVDF membrane composites for advanced crystallization processes

*E. Pantuso\**, *K. Armentano\**, *P. Formoso\**, *G. De Filpo\*\**, *G. Di Profio\*\*\**, *T.F. Mastropietro\*\*\**, *J.Y.Y. Heng\*\*\*\**, *E. Curcio\*\*\*\**, *F.P. Nicoletta\**

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**[159]. Formation of block copolymer membranes from polystyrene-*b*-poly(solketal methacrylate) (PS-*b*-PSMA) and polystyrene-*b*-poly(glyceryl methacrylate) (PS-*b*-PGMA)**

*Sarah Saleem* \*, *Sofia Rangou* \*, *Clarissa Abetz* \*, *Brigitte Lademann* \*, *Volkan Filiz* \*, *Volker Abetz* \*, \*\*

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**[176]. 3D-printed rotating spinnerets create helical multibore membranes – fabrication and characterization**

*D. Rall* \*, \*\*, *T. Luef* \*, \*\*, *D. Wypyssek* \*, \*\*, *M. Wiese* \*, *T. Femmer* \*, *C. Bremer* \*, *J. Michaelis* \*, *M. Wessling* \*, \*\*

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**[196]. Continuous dip coating of hollow fiber membranes**

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**[223]. Grafting of polyvinylidene fluoride ultrafiltration membrane by low-dose electron beam**

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**[321]. Novel strategies of PVA membranes modification to improve pervaporation properties**

*A.V. Penkova* \*, *M.E. Dmitrenko* \*, *A.I. Kuzminova* \*, *D. Roizard* \*\*

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**[322]. Novel hemodialysis membranes: Effect of MMT clay in polysulfone/AN69 membrane**

*A. Ouradi*<sup>a,b</sup>, *N. Chérifi*<sup>a,c</sup>, *F. Ouhib*<sup>d</sup>, *Q.T. Nguyen*<sup>f</sup>, *A. Benaboura*<sup>a</sup>

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**[348]. Development of electrospun PIM1 fibres**

*Elsa Lasseguette*, *Anna Fox*, *Maria-Chiara Ferrari*

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**[358]. Development of mixed-matrix green membranes based on PVA and chitosan for pervaporation**

*M.E. Dmitrenko* \*, *A.V. Penkova* \*, *A.I. Kuzminova* \*, *D. Roizard* \*\*

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**[375]. Preparation of heterogeneous anion exchange membranes from recycled membranes**

*A. Ortiz de Lejarazu* \*, *S. Molina* \*, *J. M. Ortiz* \*, *R. Navarro* \*\*, *J. Landaburu-Aguirre* \*, *E. García-Calvo* \*, \*\*\*

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**[380]. Effect of different polyanions on properties of polyelectrolyte multilayer membranes**

*A. Pihlajamäki*<sup>1</sup>, *A. Carrete Raposo*<sup>2</sup>, *M. Mänttär*<sup>1</sup>

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**[384]. A Greener Process for the production of tailored PVDF membranes**

*T. Poerio\**, *E. Fontananova\**, *C. Meringolo\**, *T. F. Mastropietro\**, *G. De Filpo\*\**, *E. Curcio\*\*\**, *G. Di Profio\**

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\*\*\*University of Calabria (UNICAL), Department of Environmental and Chemical Engineering (DIATIC), Italy

**[388]. Antibiofouling surface modification of recycled reverse osmosis membranes for membrane bioreactors**

*L. Rodríguez-Sáez\**, *J. Landaburu-Aguirre\**, *S. Molina\**, *Eloy García-Calvo\*,\*\**

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**[421]. Selective diffusion of solvent and nonsolvent in triple spinneret to prepare of high-performance PVDF hollow fiber membranes**

*J.T Jung\**, *H.H Wang\**, *J. F. Kim\**, *E. Drioli\*\*\**, *Y.M Lee\**

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**[440]. Material, Charge and Retention for a series of TFC Nanofiltration Membranes**

*A. Otero-Fernández\**, *P. Díaz\*\**, *J.A. Otero\*\*\**, *R. Ibáñez\*\**, *A. Maroto-Valiente\**, *L. Palacio\*\*\*\**, *P. Prádanos\*\*\*\** and *A.Hernández\*\*\*\**

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**[460]. Novel spinning methods for the preparation of corrugated hollow fiber membranes for membrane distillation**

*L. García-Fernández\*,\*\**, *M.C. García-Payo\*\**, *M. Khayet\*\**, *\*\*\**

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**[482]. Fabrication of cellulose-based OSN membranes from DMSO/IL solutions**

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**[483]. PAN membranes for aprotic solvents filtration application**

*A.A.Yushkin\**, *M.N.Efimov\**, *L.Marbelia\*\**, *I.F.J.Vankelecom\*\**, *A.V.Volkov\**

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**[503]. Surface Modification of an Ultrafiltration Membrane to reject Polyvalent Anions**

*I.G. Sandoval-Olvera\**, *P. González-Muñoz\**, *L. Palacio\*\**, *A. Hernández\*\**, *M. Ávila-Rodríguez\**, *P. Prádanos\*\**

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**[585]. Towards the synthesis of greener membranes: interest of PVA as porous support for application in liquid separations**

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**[590]. Polysulfone /clay composite membranes properties in the presence of raw and modified clays**

*N. Cherif<sup>a,b</sup>*, *A. Ouradi<sup>b,c</sup>*, *F. Ouhib<sup>d</sup>*, *Q.T. Nguyen<sup>f</sup>*, *A. Benaboura<sup>b</sup>*

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**[600]. Recycling RO membranes for the treatment of high saline solutions by membrane distillation**

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**[601]. Hydrophobic/hydrophilic composite nanofibrous membranes for direct contact membrane distillation**

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**[617]. Advanced synthesis and characterization of Thin-Film Nanocomposite membranes**

*Van Goethem C.\**, *Verbeke R.\**, *Dierendonck C.\**, *Pfannmöller M.\*\**, *Koschine T.\**, *Egger W.\*\*\**, *Bals S.\*\**, *Bernstein R.\*\*\*\** and *Vankelecom I.\**

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**[625]. UV cross-linking of PSU membranes for preparation of solvent resistant supports: Selection of optimal UV curing unit**

*P.-R. Van den Mooter*, *N. Daems*, *I.F.J. Vankelecom*

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**[632]. Functionalization of zirconia membranes by organo-titanates grafting for organic solvent nanofiltration**

*Keraani Adel\**, \*\*, *Delaunay David\**, \*\*\*, *Renouard Thierry\**, *Rabiller-Baudry Murielle\**

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**[637]. Preparation of thermo-responsive PNIPAAm grafted PES membranes via UV-induced polymerization**

*F. F. Ghiggi\**, *N. S. M. Cardozo\*\**, *I. C. Tessaro\**

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**[642]. Development of SBA-15 intermediate layers onto tubular PSS supports to prepare Pd-membranes for H<sub>2</sub> production**

*D. Sanz*, *D. Alique*, *A.J. Vizcaíno*, *R. Sanz*, *J.A. Calles*

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**[673]. Multi-scale topography analysis of ultrafiltration membrane surface for performance control**

*M. A. Kammoun\**, \*\*, *S. Gassara\*\**, *T. Thami\*\**, *R. Ben Amar\**, *A. Deratani\*\**

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**[678]. Synthesis and characterization of polysulfone nanocomposite membrane embedded with nano alumina for Cu<sup>2+</sup> removal from wastewater**

*M. Younas<sup>1\*</sup>*, *M. Ayaz\**, *A. Muhammad\**

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**[695]. Selective gas permeability of poly(4-methyl-1-pentene) modified by gas phase fluorination**

*S. Yu. Markova, A. A. Kozlova, V. V. Teplyakov*

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**[699]. Fabrication of structured Nafion membranes for protein crystallization**

*M. Polino\*, \*\*, \*\*\*, C. A. M. Portugal\*, I. M. Coelho\*, R. Tiggelaar\*\*\*\*, H. Le The\*\*\*\*\*, J. Eijkel\*\*\*\*\*, J. G. Crespo\*, M.P. Pina\*\*, R. Mallada\*\**

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**[702]. Tailoring of polymer membranes properties with reactive ionic liquids**

*E. Rynkowska\*, \*\*, K. Fatyeyeva\*\*, J. Kujawa\*, A. Wolan\*, K. Dzieszkowski\*, W. Kujawski\**

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**[727]. Polymer additive monitoring during fabrication and ageing of UF hollow fibre membranes**

*S. Gassara\*, C. Pochat-Bohatier\*, O. Lorain\*\*, A. Deratani\**

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**[768]. Evaluation of different polymers to prepare polymer inclusion membranes: effect on their physical-chemical characteristics and transport efficiency**

*I. Ait Khaldoun\*, \*\*, J.A. Méndez\*\*\*, L. Mitiche\*, A. Sahmoune\*, C. Fontàs\*\**

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**[793]. Solvent tolerant nanofiltration membrane development using epoxy ring opening reactions**

*M. Bastin\*, E. Dom\*, K. Bogaert\*, S. Rutten\*, J. Van den Bosch\*, S. Hermans\*, G. Koeckelberghs\*\*, I. F. J. Vankelecom\**

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**[811]. Fabrication and application of high flux layer-by-layer nanofiltration membranes in brackish ground water desalination**

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**[832]. Novel synthesis of ZIF-8 membrane synthesised with isolated pre-cursors**

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**[835]. Chemical treatment and insertion of TiO<sub>2</sub> particles on polymeric PDVF membranes, and their application in heterogeneous catalysis**

*F.V.Arias-Ruiz\*, G. Rangel-Porras\*, T.A Razo-Lazcano\*, M. Avila-Rodriguez\*, M.P.Gonzalez-Muñoz \**

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**[845]. Selective modification of membrane pore and external surfaces**

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**[868]. Preliminary study on asymmetric Polysulphone (PSF) membranes for ultrafiltration processes application into industrial grade wastewaters purification field**

*A. Sacca\**, *Y. Gutierrez-Piña\*\**, *M. Pilar González-Muñoz\*\**, *R. Pedicini\**, *A. Carbone\**, *F.V. Matera\**, *I. Gatto\**, *L. Espitia-Villanueva\*\**, *S. Gutierrez-Granados\*\**, *L. Hernandez-Perales\*\**, *I. Olvera\*\**, *T.A. Razo-Lazcano\*\**, *M. Avila-Rodriguez\*\**

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**[910]. Controlling the Hydrophobicity of Electrospun PVDF-HFP Membranes for Membrane Distillation**

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**[912]. Preparation and Characterization of membrane with PVDF-diluent mixtures using thermally induced phase separation (TIPS) process**

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**[917]. Preparation and characterization of composite cation-exchange membranes for the speciation of metal ions in natural waters**

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**[925]. How surface functionalization can influence membrane performance?**

*S. Al-Gharabli\**, *J. Kujawa\*\**, *W. Kujawski\*\**, *E. M. Hamad\*\*\**

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## Membrane fouling and ageing

**[40]. The rejection and the fouling behaviour of naphthenic acids in oil sands process-affected water forward osmosis filtration**

*S Zhu\**, *L Xiang\*\**, *M Li\**, *H Zeng\*\**, *M Gamal El-Din\**

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**[69]. Impact of operation conditions and foulant adsorption on the nanomechanical properties of UF hollow fiber membranes**

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**[80]. Quantification of Fouling Formation in Membrane Distillation by means of Optical Coherence Tomography**

*A. Bauer\*,\*\**, *V. Hilgenfeldt\**, *F. Saravia\**, *M. Wagner\*\*\**, *Harald Horn\*,\*\**

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**[86]. MABMEM – a material toolbox for the modification of ultrafiltration membranes**

*Oliver Gronwald\*, Martin Weber\*, Lara Gruenig\*\*, Ulrich A. Handge\*\*, Martin Heijnen\*\*\*, Stefan Panglisch\*\*\*\*, Arman Kouchaki Shalmani\*\*\*\*\**

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**[89]. Membrane cleaning and its impact on plant operations and economics in food and biotech industry**

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**[102]. An investigation of the effect of 3-D printed patterned surfaces on membrane fouling**

*Saeed Mazinani, John Chew, Davide Mattia*

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**[160]. 3DEEM fluorescence spectroscopy for on-line membrane bioreactor fouling control**

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**[180]. Using electrokinetic leakage to probe internal fouling of ultrafiltration membranes**

*A. Szymczyk\*, V. Drevet\*, S. Liu\*\*, E. Clavijo Rivera\*\*, L. Villafaña López\*\*, M. Rabiller-Baudry\*, E. Couallier\*\*, M. Frappart\*\**

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**[182]. Fouling of ion-exchange membranes during acid whey electrodialysis**

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**[186]. Enhanced ultrafiltration performance by a pressure surge**

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**[197]. VicInAqua project: development of self-cleaning and antibiofouling membranes for wastewater treatment**

*F. Galiano\*, R. Mancuso\*\*, B. Armentano\*\*\*, M. Carraro\*\*\*\*, M. Bonchio\*\*\*\*, E. Gukelberger\*\*\*\*\*, J. Hoinkis\*\*\*\*\*, A. Criscuoli\*, A. R. Cappello\*\*\*, B. Gabriele\*\*, L. Giorno\*, A. Figoli\**

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**[224]. Alternative cleaning strategies for membranes in biorefineries**

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**[270]. Study of interactions between microorganisms and material at the surface of a membrane with antibiofouling properties**

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**[275]. Direct observation of oil fouling on osmotically-driven membrane processes: Effect of surfactant concentration and pH**

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**[290]. How to shorten demonstration of harmlessness of new formulated disinfectants toward membrane material? Application to Reverse Osmosis and Ultrafiltration membranes**

*Le Petit Lucie\*, \*\*, Rabiller-Baudry Murielle\*, Touain Romain\*, Chataigner Raphaël\*, Thomas Patrick\*, Olivier Connan\*\*, Régis Périon\*\**

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**[291]. How algal caused ultrafiltration fouling depends on type and growth phase of algae**

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**[304]. Investigating the Filterability of Oil Containing Waste Waters Using Polymeric Membranes**

*H. Idrees, M. Keller, S. Panglisch*

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**[310]. On the evolution of membrane cleanability with ageing at both limiting and critical fluxes in the case of skim milk ultrafiltration**

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**[355]. A study on the relationship between membrane area requirements and specific boundary flux parameters**

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**[396]. Evolution of AMX-Sb anion-exchange membrane properties in initial stages of fouling by red wine**

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**[407]. Linking ultrafiltration membrane materials modification to filtration performances after chlorine exposure**

*J. Chokki\*, \*\*, G. Darracq\*\*, B.Teychené\*, P.Pöhl\*\*\*, S. Wurtzer\*\*, J. Baron\*\*, H. Gallard\*, M. Joyeux\*\**

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**[449]. Prevent membrane fouling by selecting appropriate dense membranes**

*M. Michaud, C. Charcosset, D. Mangin, E. Chabanon*

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**[488]. Fouling minimization on a reverse osmosis membrane based on boundary conditions statistical optimization**

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**[567]. Elaboration of PVDF hollow fiber membranes for an improved fouling control**

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**[570]. Effect of surface roughness on membrane fouling for reverse osmosis applications**

Zhiwei Jiang\*, Santanu Karan, Andrew G. Livingston

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**[579]. Optimizing surface modifying parameters of *in situ* redox-initiating graft polymerization for nanofiltration fouling mitigation**

Justin Chun-Te Lin\*, Yung-Lun Chu

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**[607]. Study of selected aspect of membrane fouling using photoacoustic spectroscopy**

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**[626]. Effect of chemical cleaning agents on ageing of commercial NF and RO membranes**

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**[657]. Usage of ppm h concept for membrane aging. Polyamide tolerance to free chlorine**

R. García-Pacheco<sup>1</sup>, A. Ortiz de Lejarazu<sup>1</sup>, J. Landaburu-Aguirre<sup>1</sup>, S. Molina<sup>1</sup>, T. Ransome<sup>2</sup>, E. García-Calvo<sup>1,3</sup>

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**[693]. Application of DCMD for textile wastewater treatment and fouling study**

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**[705]. Acidification, de-carbonization and in-situ free-chlorine generation in seawater; a potential pretreatment for biofouling control in SWRO membranes**

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**[711]. Preparation and Characterization of Antifouling Nanofiltration Membrane from a Responsive Block Copolymer**

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**[716]. One step surface modification of membranes with quaternary ammonium cations for improving antibacterial activity**

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**[717]. The Influence of Solvent Type on the Fouling Behaviour of PSf/SPES Blend Ultrafiltration Membranes During Filtration of Oil Water Emulsion**

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**[726]. Colloidal deposition on polymer-brush-coated NF membranes**

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**[742]. Nanoscale detection of membrane fouling using combined sensorial surface-sensitive techniques**

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**[821]. Monitoring and Prediction of Reverse Osmosis Membranes Biofouling: Surface Interactions and Viscoelastic Properties**

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**[843]. Understanding of casein micelles concentrated layers properties during cross flow ultrafiltration by *in-situ* small-angle X-ray scattering (SAXS)**

*F. Doudiès\*, \*\*\*, M. Loginov\*, F. Garnier-Lambrouin\*, N. Leconte\*, L. Sharpnack\*\*, N. Hengl\*\*\*, F. Pignon\*\*\*, G. Gésan-Guiziou\**

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**[861]. Study of pervaporation membranes on model media and fermentation broth, towards an extractive fermentation process for continuous production of bio-butanol**

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**[875]. Validating the Performance of a Novel Bench-Scale Ultrafiltration System**

*C. Tang\*, A. Lok\*, P.R. Bérubé\*\*, R.C. Andrews\**

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**[884]. In-situ microrheology of a foulant layer**

*Jose A. Epstein, Naama Segev Mark, Guy Z. Ramon\**

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**[886]. Influence of wastewater type and bioreactor conditions on SMP production and on the subsequent ultrafiltration**

*Eva Ferrer-Polonio\*, Amparo Bes-Piá, Beatriz Cuartas-Urbe, José-Antonio Mendoza-Roca*

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## **Nanofiltration and Reverse Osmosis**

**[18]. On the universal solvent occupancy of the excess free volume in glassy polymers**

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**[90]. Experimental and theoretical study of nanofiltration of weak electrolytes: HSO<sub>4</sub><sup>-</sup> /SO<sub>4</sub><sup>2-</sup> system**

*J. Lopez\**, *M. Reig\**, *X. Vecino\**, *C. Valderrama\**, *O. Gibert\**, *\*\**, *A. Yaroshchuk\**, *\*\**, *J.L. Cortina\**, *\*\**

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**[103]. Evaluation of polymeric nanofiltration membranes on metal valorisation from acidic mine waters**

*J. Lopez\**, *M. Reig\**, *X. Vecino\**, *C. Valderrama\**, *O. Gibert\**, *\*\**, *E. Torres\*\*\**, *C. Ayora\*\*\**, *J.L. Cortina\**, *\*\**

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**[130]. Developing a novel amine functionalized boron nitride BN(NH<sub>2</sub>)-polypiperazine amide thin film composite nanofiltration membrane with enhanced flux and fouling resistance**

*Sara Abdikheibari\**, *Weiwei Lei\*\**, *Ludovic Dumeé\*\**, *Nicholas Milne\**, *Kanagaratnam Baskaran\**

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**[140]. Concentration of anthocyanins from grape marc extract using pressurized liquids and nanofiltration**

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**[143]. Maleic anhydride based copolymers grafted to  $\gamma$ -alumina for high-performance organic solvent nanofiltration membranes**

*M. Amirlargani\**, *R. B. Merlet\*\**, *A. Nijmeijer\*\**, *L. Winnubst\*\**, *L. C. P. M. de Smet\**, *E. J. R. Sudhölter\**

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**[152]. Nanofiltration for pre-treatment of acid mine drainage**

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**[167]. Use of renewable green solvents in membrane preparation**

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**[190]. Impact of the organic solvent on the nanofiltration transfer mechanism of hydro-organic mixtures: an experimental study**

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**[203]. Ion transport through anodic alumina membranes**

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**[288]. Synthesis and characterization of novel functionalized graphene oxide/polyethersulfone nanocomposite membranes for water purification**

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**[295]. Concentration and selective separation of carboxylic acids from fermented effluents by employing membrane processes**

*J. M. B. Domingos, G. A. Martinez, E. Morselli, S. Puccio, S. Notarfrancesco, S. Bandini, L. Bertin*

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**[297]. On the transfer mechanisms in organic solvent nanofiltration of a set of linear solutes of close molecular weight but different physico-chemical properties**

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**[317]. Lignin derived fractions: developing performance based chemicals and materials using membrane separation technology**

*Pieter Vandezande\*, Kelly Servaes, Richard Vendamme, Karolien Vanbroekhoven, Anita Buekenhoudt, Ludo Diels*

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**[318]. The Effects of Membrane Compaction on Free Volume and Thickness of Reverse Osmosis (RO) Membrane**

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**[336]. Elemental composition and free-volume depth-profiling of PA TFC membranes with PALS and ERD**

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**[369]. Separation of organic compounds by reverse osmosis**

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**[372]. Clarification and protein stabilization of white wines by ultrafiltration**

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**[412]. Influence of physical-chemical parameters of dyes in the retention and flux in nanofiltration process**

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**[453]. Quantification of convective and diffusive proportions of solvent fluxes through polymeric OSN membranes**

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**[474]. Cellulose-based nanofiltration membranes by regeneration of cellulose acetate via alkaline hydrolysis**

*Zeynep İmir\*, P. Zeynep Çulfaz Emecen\**

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**[531]. Tuning performance of Polybenzimidazole Organic-Solvent-Nanofiltration Membranes via Post-modification approach**

*Marchetti Patrizia, Piers R. J. Gaffney, Daeok Kim, Andrew G. Livingston*

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**[538]. Exploring the effect of charged NF membranes on Calcium phosphate scaling**

*Michaela Kaganovich\*, Roy Bernstein\**

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**[611]. Crosslinking of PVDF nanofiltration membranes for application in extreme conditions**

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**[612]. Assessment of nanofiltration potenciality to recover lactic acid from whey**

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**[613]. Crosslinked PVDF membranes for Solvent Resistant Nanofiltration/Ultrafiltration**

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**[629]. Preliminary study on chromium removal in contaminated groundwater by nanofiltration**

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**[638]. Pilot-scale chlorination of brackish water reverse osmosis TFC membranes and their thorough physicochemical characterization**

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**[668]. Using High Salinity Pulse Backwashing to remove adhered bacteria from Nanofiltration and Reverse Osmosis Membranes**

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**[672]. Olive pomace treatment by NF and RO membranes**

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**[675]. Thin-film composite poly(ionic) gel membranes for nanofiltration in organic solvents**

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**[684]. Fate of micropollutants in combined magnetic ion exchange resin- nanofiltration (MIEX-NF) membrane process under fouling conditions**

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**[698]. Recovering dewaxing solvent from lubrication oil by Organic Solvent Nanofiltration (OSN)**

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**[710]. Purification and concentration of cynaropicrin derived by ethanolic ultrasound cynara cardunculus extracts: influence of operating parameters**

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**[715]. Hydration effects in the nanofiltration of concentrated solutions**

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**[764]. Characterization of new and aged reverse osmosis membranes**

*C. Antonelli, J. Bouillonnet, M. A. Kammoun, S. Gassara, A. Deratani*

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**[785]. Integration of nanofiltration in the fermentative production of lactic acid from cheese whey: selection of membrane for the separation of lactic acid and lactose**

*P. Díaz Guridi\*, P. González Barrero\*, S. Luguera González\*, J. A. Otero Hermida\* and R. Ibáñez Mendizábal\**

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**[802]. Removal of heavy metal ions from aqueous solutions by nanofiltration**

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**[805]. Temperature measurement of the reaction zone during interfacial polymerization**

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**[898]. Recovery of phenolic compounds by nanofiltration membranes. Effect of conductivity and organic matter**

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**[921]. Effective interfacially polymerized polyester solvent resistant nanofiltration membrane from bioderived materials**

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**[924]. Improving the performance of polyamide Nano-filtration membrane in acidic media by incorporation of modified multi-walled carbon nanotubes**

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**[928]. Influence of osmotic pressure and fouling on permeate flux during the NF of wastewater from table olive production**

*Carlos Carbonell-Alcaina\**, *Silvia Álvarez-Blanco\*,\*\**, *M<sup>a</sup> Amparo Bes-Piá\*,\*\**, *José Antonio Mendoza-Roca\*,\*\**, *Laura Pastor-Alcañiz\*\*\**

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**[929]. Utilization of nanofiltration to recover the phenolic compounds present in olive oil production wastes**

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## Electrochemical membrane processes

**[100]. A novel method for characterization of ion-exchange membranes through transient membrane potential after concentration step**

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**[158]. Electrochemical membrane reactor for lignin depolymerization: modelling and optimization**

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**[164]. Anion-Exchange Membrane blended with a functionalized polyelectrolyte to enhance phosphate transport over sulfate**

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**[171]. Temperature effects on elastic and diffusive permeability of electrolyte solutions across a swollen regenerated cellulose membrane**

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**[293]. Preparation and identification of optimum synthesis conditions for a novel anion-exchange membrane**

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**[305]. Proton transport on phosphoric-doped composite Polybenzimidazole membranes with ionic liquids for high temperature fuel cells applications**

*Abel Garcia-Bernabé\**, *Jorge Escorihuela\**, *Álvaro Montero\**, *Óscar Sahuquillo\*\**, *Enrique Gimenez\*\**, *Vicente Compañ\**



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**[306]. Effect of crosslinker in ionic transport on composite polymers containing covalently attached and absorbed ionic liquid fragments**

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**[307]. Sub-stoichiometric titanium oxide reactive electrochemical membrane for removal of organic pollutants from water: process and material development**

C. Trelu\*, M. Rivallin\*, R. Esmilaire\*, S. Cerneaux\*, S. Lacour\*, J.C. Rouch\*\*, C. Coetsier\*\*, C. Causserand\*\*, M. Cretin\*

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**[382]. Challenges in the use of reversal electro dialysis to upgrade the saline energy gradient in Cantabria**

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**[386]. Influence of the pulsed electric field parameters on the chronoamperograms of Nafion™ 438**

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**[419]. Conductivity, Diffusivity and Free Charge Density in Polymer-Supported Ionic-Liquid-Like Phases (SILLPs)**

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**[426]. Theoretical study of non-catalytic water splitting reaction in membrane systems**

A.V. Pismenskiy, V.V. Nikonenko, A.V. Kovalenko, M.Kh. Urtenov

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**[438]. Desalination of sodium formate from methanol-formamide solution via electro dialysis**

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**[457]. Effect of current density on the structure of diffusion boundary layer adjacent to an ion-exchange membrane in solutions containing multiply charged ions**

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**[473]. Influence of roughness of microfiltration membranes in Electrical Impedance Spectroscopy measurements**

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**[490]. Regenerated cellulose membrane modification by Janus-silver nanoparticles inclusion**

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**[516]. Modelling the transport of weak electrolytes through ionexchange membranes**

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**[518]. Electrowinning of metallic iron from hematite leaching solutions with red cells**

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**[573]. Chloride effect on transport properties of phosphate through an anion exchange membrane by chronopotentiometry**

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**[662]. Scale-up of a membrane electrochemical reactor for zinc recovery from spent pickling baths**

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**[911]. The anion exchange membrane based poly(ether ether ketone) for fuel cell application**

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**[918]. Cadmium (II) removal in water using nanoparticles embedded on a membrane and detection using anodic stripping voltammetry**

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## Membranes for energy conversion and storage

**[19]. Chevron-profiled membranes – an innovative design for increasing net power density in Reverse Electrodialysis (RED)**

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**[244]. Fabrication and characterizations of pore-filled ion-exchange membranes for efficient reverse electrodialysis**

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**[262]. Robust thermally rearranged (TR) polymer membrane for high performance in pressure retarded osmosis (PRO) using highly concentrated solutions**

*S.J. Moon, J.H. Kim, S.H. Park, S.M Lee, and Y.M. Lee\**

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**[271]. Scale-Up of planar oxygen transport membranes to component size**

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**[373]. Synthesis and characterization of a novel functionalized crosslinked polysiloxane for proton exchange membrane fuel cell**

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**[415]. Ternary polybenzimidazole membranes for advanced alkaline water electrolysis**

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**[416]. Removal of hydrogen sulfide impurities from biogas mixtures by hollow fibre PDMS membrane**

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**[546]. Cation Exchange Membrane Design for Reducing the Impact of Mg<sup>2+</sup> ion on Salinity Gradient Power-Reverse Electrodialysis**

*Ramato Ashu Tufa\*, Theo Piallat\*, Roman Kodym\*, Willem van Baak\*\*, Jaromír Hnát\*, Martin Páidar\*, Karel Bouzek\**

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**[643]. Nanodispersed perfluorinated ionomers for polymer electrolyte membrane fuel cells**

*S. Y. Pyo, J. P. Hwang, J. H. Ahn, Y. J. Lim, W. Y. Kim, J. J. Park, C. H. Lee*

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## Fuel cells and batteries

**[66]. Membrane characterization and accelerated cycling durability in hydrogen-bromine flow battery system**

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**[156]. Innovative membranes based on polymerizable ionic liquid and its copolymers for fuel cell applications**

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**[201]. Polybenzimidazole (PBI) doped with zeolitic imidazolate frameworks for high temperature proton exchange membranes**

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**[257]. Development of pore-filled anion-exchange membranes for alkaline direct liquid fuel cells**

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**[284]. SPEEK membranes doped with zeolitic imidazolate frameworks for proton conducting applications**

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**[872]. PVDF/PVDFs based Microporous Layers (MPLs) development for PEMFCs**

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**[881]. Poly(vinyl alcohol) based membranes with sulfonated graphene oxide and graphene oxide particles for fuel cell applications**

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**[48]. Polysulfone/N,Pd co-doped TiO<sub>2</sub> photocatalytic membranes for dye degradation**

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**[136]. Carbon Nitride Nanotubes Membranes**

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**[199]. Thermally rearranged (TR) polymer membranes for lithium-ion battery separator**

*S.H. Noh\*, J.H. Kim\*, S.H. Park\*, S.J. Moon\* and Y.M. Lee\**

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**[204]. Fouling mitigation in ultrafiltration for wastewater treatment using zinc oxide nanoparticles**

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**[454]. Carbon Nanomembranes (CNMs) - 1-nm thick selective membranes for separation and filtration**

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**[548]. Energy transduction of fluctuating signals using single and multipore asymmetric membranes**

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**[556]. PVDF hollow fibers prepared by using adipic acid as additive: morphological characterization by helium ion microscopy (HIM)**

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**[602]. Fabrication of macrovoid-free polyethersulfone/sulfonated polysulfone/o-MWCNT support UF membranes with improved mechanical strength, antifouling and performance properties**

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**[700]. Cross-linked polymer inclusion membrane (PIM): Faster extraction and longer stability**

*B. Hoque\**, *M.I.G.S. Almeida\**, *R.W. Catrall\**, *T.G. Gopakumar\*\**, *S.D. Kolev\**

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**[769]. Effects of confined graphene in membrane distillation**

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**[5]. The effect of membrane-vessel wall distance, continuous phase viscosity and rotating speed on droplet size in SPG membrane emulsification**

*Z. Šereš\**, *Lj. Dokić\**, *N. Maravić\**, *D. Šoronja Simović\**, *I. Nikolić\**, *J. Petrović\**, *B. Hajnal\**

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**[77]. Boron nitride nanosheets (BNNS) membranes**

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**[166]. A new pilot plant to pervaporation scale-up**

*T. Truong\**, *T. Larocca\*\**, *E. Louradour\**, *E. Carretier\*\**, *D. Dhaler\** and *P. Moulin\*\**

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**[210]. Ionomer based hybrid membranes for CO<sub>2</sub> capture**

*Zhongde Dai<sup>1</sup>*, *Hesham Aboukeila<sup>1,2</sup>*, *Luca Ansaloni<sup>1</sup>*, *Jing Deng<sup>1</sup>*, *Marco Giacinti Baschetti<sup>2</sup>* and *Liyuan Deng<sup>1\*</sup>*

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**[232]. Fabrication and characterizations of interpenetrating polymer network membranes containing hydrogel capsules**

*Do-Hyeong Kim\**, *Ji-Eun Lee\**, *Eun-Hye Jang\*\**, *Dae-Jin Ko\*\**, *Moon-Sung Kang\**

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**[273]. Bioinspired forward osmosis assisted hydroponic system: a promising paradigm of bio-desalination**

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**[278]. Concentration of aqueous *S. cumini* (L.) leaves extract using nanofiltration: Effect of pre-treatment and analysis of flux decline**

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**[302]. Affinity membrane chromatography for the purification of Immunoglobulin G**

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**[408]. Microstructured Systems for Lemon Oil Encapsulation**

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**[464]. Dynamic Membranes for Food Aroma Encapsulation**

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**[484]. Comparative evaluation of physical cleaning methods for removing organic foulants by fluorescence excitation-emission and PARAFAC**

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**[486]. Economic evaluation of the reverse osmosis and pressure retarded osmosis hybrid desalination process**

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**[505]. Liquid membranes in Taylor flow regime**

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**[515]. Sinusoidal flux permeation applied to investigate fouling irreversibility in ultrafiltration**

*M.C. Martí-Calatayud\**, \*\*, *S. Schneider\*\**, *M. García-Gabaldón\**, *V. Pérez-Herranz\**, *M. Wessling\*\**, §

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**[566]. Unravelling the force balance in a magnetic responsive biohybrid membrane for sustainable separations**

*Abaynesh Y. Gebreyohannes\**, *T. Geens\**, *A. Kubarev\**, *M. Roeffaers\**, *T. Verbiest,\*\** *W. Naessens\*\*\**, *I. Nopens\*\*\**, *Ivo F.J. Vankelecom\**

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**[587]. Insight CO<sub>2</sub> capture by aqueous ammonia with membrane contactors: tackling the salt formation issue to ensure capture efficiency**

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**[708]. Membranes from vertical aligned CNTs (VA-CNT) for waste water treatment**

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## Biomedical membrane applications

**[12]. Functional membranes as extracellular matrix for the central nervous system**

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**[97]. Glycerin release from membrane by filtration and soaking: Application to “one shoot membranes” for medical**

*S. Arénillas\*, M. Drouin\*, E. Monnin\*\*, Philippe Moulin\**

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**[170]. Lipid coverage for PVD porous membrane biocompatibilization**

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**[218]. Novel convective affinity chromatography membranes for preparative separations processes**

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**[379]. Membrane properties modulate behaviour of keratinocytes and mesenchymal stem cells in a dermal-epidermal system**

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**[410]. A comparative study of poly( $\epsilon$ -caprolactone) membranes functionalized with graphene on flat and hollow fiber configuration for tissue engineering**

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**[471]. CO<sub>2</sub> and O<sub>2</sub> permeation of polyurethane/polycaprolactone integral asymmetric and nonporous symmetric membranes**

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**[512]. Effects of electron beam irradiation on the structural, mechanical and transport properties of chitosan membranes**

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**[534]. Supramolecular interaction-enhanced self-assembled asymmetric block copolymer membranes as drug reservoirs for controlled release**

*T. Huang*, *P. Manchanda*, *K.V. Peinemann*

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**[660]. The influence of flow interruptions on bacteria and particle retention efficiency by microfiltration membranes**

*A. Helling\**, \*\*, *M. Polakovic\**, *D. Melzner\*\**, *V. Thom\*\**,

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**[692]. Selection of fillers for the development of novel Mixed Matrix Membrane Adsorbers for the removal of uremic toxins**

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**[784]. Towards Stimuli Responsive Membranes for the selective capture of blood platelets**

*Y. Chang\**, *A. Venault\**, *J. Wang\**, *C-J Chou\**, *P. Roblin*, *C. Causserand\*\**, *P. Bacchin\*\**, *P. Aimar\*\**, *J.Y. Lai\**

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**[880]. In vitro evaluation of tailored nanofibrous polycaprolactone/gelatin membranes for biomedical applications**

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**[915]. The effect of iron(III) concentration in nitric acid solutions on diffusion dialysis membrane performance**

*David Malý\**, \*\*, *Martin Kout\**,

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## Process intensification and economic analysis

**[111]. Membrane-Based H<sub>2</sub> Recovery and Utilization from Photocatalytic Water Splitting Using CO<sub>2</sub>**

*Sari Alsayegh\**, \*\*, *J. R. Johnson\**, *Burkhard Ohs\*\**, *Matthias Wessling\*\**

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**[185]. Coupling between nanofiltration and ozonation for wastewater reuse: a technical and economic analysis**

*J. Mendret\**, *A. Azais\**, *S. Brosillon\**

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**[192]. Simple graphical approach to compare performances of several membrane cascades' designs applied to OSN of 10-undecenitrile hydroformylation final medium**

*Lejeune Antoine\**, *Rabiller-Baudry Murielle\**, *Renouard Thierry\**, *Augello Jonathann\**, *Liu Yatong\**, *Balannec Béatrice\**, *Dominique Wolbert\**



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**[212]. VOC dehydration by pervaporation including a near-infrared acquisition system**

*T. LA ROCCA\**, *E. CARRETIER\**, *T. CLAIR\*\**, *M. ETIENNE\*\**, *P. MOULIN\**

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**[247]. Mass and heat transfer during pervaporation process**

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**[300]. Fundamental Modelling of Membrane Systems: Membrane and Process Performance**

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**[361]. Process intensification of heterogeneous catalyzed reactions using membranes**

*L. Eykens\**, *D. Ormerod\**, *M. Dorbec\**, *A. Buekenhoudt\**

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**[609]. Environmental and economic assessment of reverse osmosis recycling to nanofiltration and ultrafiltration at pilot scale**

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**[761]. Recovery of valuable substances by treatment of liquids from the Printed-Circuit-Board industry with Membrane Distillation**

*C. Platzer\**, *S. Meitz\*\**, *E. Guillen*, *A. A. J. Tahir*, *Brunner*, *J. Buchmaier*, *B. Muster*

**[813]. Novel domestic reverse osmosis filter with reduced waste water discharge**

*Y. Orestov\**, *DSc T. Mitchenko\*\**

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**[820]. Comprehensive experimental study of membrane cascade configurations of continuous membrane column type for highpurification of gases**

*V.M. Vorotyntsev*, *A.A. Atlaskin*, *M.M. Trubyanov*, *D.N. Shablikin*, *P.N. Drozdov*, *I.V. Vorotyntsev*

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## Membrane module development

**[88]. Air backwash efficiency on organic fouling Impact on hydraulic performances and oyster gametes viability**

*C. Cordier\**, *C. Stavrakakis\*\**, *P. Sauvade\*\*\**, *F. Coelho\*\*\**, *P. Moulin\**

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**[121]. Determination of molecular weight cut off by x-ray micro CT**

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**[239]. Membrane compaction and intrusion as performance-limiting factors during the operation of high-pressure reverse osmosis spiral wound elements**

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**[245]. Numerical simulation of membrane filtration process adapted for water treatment of aerated sewage lagoons**

*G. Cano\*, A. Mouahid\*, E. Carretier\*, D. Dhaler\*\*, P. Moulin\**

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**[274]. Improvement of dynamic filtration system design for enhanced filtration performance and reduced energy requirement**

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**[543]. Energy-efficient Hollow Fiber Membrane Module with Turbulent Jet**

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**[624]. An integrated solar-driven membrane distillation system for water purification and energy production**

*L.-J. Beier\*, Q. Li\*\*, J. W. Tan, R. A. Taylor, G. Leslie*

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**[736]. Designing of hollow fibre membrane distillation modules**

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## Osmotic membrane contactors

**[137]. Biomimetic membranes with Pluronic® based vesicles incorporating Aquaporin Z**

*R. Górecki\* \*\*, M. Spulber, D\*. Tvermoes\*, K. W. Trzaskus\*, C. Hélix-Nielsen\* \*\**

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**[211]. Characterization of porous PTFE membranes and their potential application in osmotic distillation**

*J.I. Calvo\*, A. Hernandez\*, L. Palacio\*, P. Pradanos\*, M. Ailuno\*\*, A. Bottino\*\*, G. Carniglia\*\*, A. Comite\*\*, A. Jezowska\*\*, M. Pagliero, \*\* R. Firpo\*\**

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**[646]. Design and modelling forward osmosis process for the recovery and reuse of chromium from chrome tanning wastewater**

*Jaime Lora-Garcia\**, *Mayko Rannany S. Sousa\**, *Maria-Fernanda López-Pérez\**, *M. Arteaga\*\**, *E.S. Oporto\*\**, *N.I. Pinaya\*\**

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**[680]. Fouling analysis in Hollow Fiber Membrane Contactor for Concentration of Pomegranate Juice through Osmotic Distillation**

*M. Younas\**, *W. Ur-Rehman\**, *A. Muhammad\**

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**[704]. Tubular Forward Osmosis Membranes and Modules**

*K.S. Roelofs\**, *G. Bisle\**, *N. Sacher\**, *P. Dlugolecki\**, *G. Sun\*\**, *X.T. Nguyen\*\**, *M.E. Perry\*\**, *C.H. Nielsen\*\*\**

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**[927]. Comparison of three hypersaline industrial wastewaters as draw solutions for forward osmosis concentration processes**

*J.L. Soler-Cabezas\**, *M.J. Luján-Facundo\**, *M.C. Vincent-Vela\**, *J.A. Mendoza-Roca\**, *L. Pastor-Alcañiz\*\**, *S. Doñate-Hernández\*\**

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