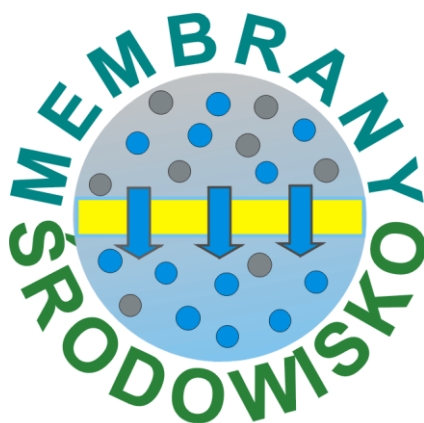


**XIII Konferencja Naukowa  
„Membrany i Procesy Membranowe  
w Ochronie Środowiska”**

**MEMPEP 2021**

**10 – 11 czerwca 2021, online**

**PROGRAM**



**13<sup>th</sup> Scientific Conference  
„Membranes and Membrane Processes  
in Environmental Protection”**

**MEMPEP 2021**

**June 10 – 11, 2021, online**

**PROGRAMME**

## 10.06.2021, CZWARTEK / THURSDAY

**9<sup>00</sup>-9<sup>05</sup> OTWARCIE KONFERENCJI / OPENING OF THE CONFERENCE**  
Professor Michał Bodzek

**I. Przewodniczący / Chairpersons:**  
Professor Sylwia Mozia  
Professor Wojciech Kujawski

9<sup>05</sup>-9<sup>40</sup> ENRICO DRIOLI  
*Wetting problems and solutions in membrane distillation and assisted membrane crystallizers*

9<sup>40</sup>-10<sup>10</sup> BART VAN DER BRUGGEN  
*How realistic is the selective separation of lithium by ion exchange membranes?*

10<sup>10</sup>-10<sup>25</sup> ANNA SIEKIERKA, KATARZYNA SMOLINSKA-KEMPISTY, MAREK BRYJAK  
*CAPMIX as a method for energy harvesting from salinity gradient*

10<sup>25</sup>-10<sup>40</sup> KRZYSZTOF MITKO, MARIAN TUREK  
*Energy consumption in membrane capacitive deionization and electrodialysis of low salinity water*

10<sup>40</sup>-10<sup>50</sup> AMRISH RATHI, ASAHI KASEI CORPORATION  
*20 years + of experience using MICROZA Hollow Fibre in Water Application*

**10<sup>50</sup>-11<sup>05</sup> PRZERWA / BREAK**

**II. Przewodniczący / Chairpersons:**  
Professor Barbara Tomaszewska  
Professor Marian Turek

11<sup>05</sup>-11<sup>20</sup> JACEK WIŚNIEWSKI, MAŁGORZATA KABSCH-KORBUTOWICZ  
*Removal of harmful ions from water in processes with ion-exchange membranes*

11<sup>20</sup>-11<sup>35</sup> ANDRZEJ CHWOJNOWSKI, CEZARY WOJCIECHOWSKI, MONIKA WASYLĘCZKO,  
EWA ŁUKOWSKA, TOMASZ KOBIELA, PIOTR DOBRZYŃSKI, MAŁGORZATA PASTUSIAK,  
ANNA SMOLA-DMOCHOWSKA  
*Polyethersulfone-co-polyesters blend ultrafiltration membranes for biomedical and biotechnical applications*

11<sup>35</sup>-11<sup>50</sup> SYLWIA MOZIA, PAULINA SIENKIEWICZ, KACPER SZYMAŃSKI, DOMINIKA DAROWNA,  
ADAM CZYŻEWSKI, MICHAŁ ZGRZEBNICKI  
*Influence of the procedure of casting solution preparation on the antimicrobial properties of polyethersulfone membranes modified with titanate nanotubes*

11<sup>50</sup>-12<sup>20</sup> NALAN KABAY, ENVER GÜLER, MÜSERREF ARDA, MITHAT YÜKSEL,  
BARBARA TOMASZEWSKA, MAREK BRYJAK  
*Integrated management of geothermal water by ion exchange and membrane processes*

12<sup>20</sup>-12<sup>30</sup> TOMASZ KOCON, CERAFILTEC Poland sp. z o.o.  
*CERAFILTEC flat sheet ceramic filtration membranes*

**12<sup>30</sup>-12<sup>45</sup> PRZERWA / BREAK**

## 10.06.2021, CZWARTEK / THURSDAY

### III. Przewodniczący / Chairpersons:

Professor Katarzyna Majewska-Nowak  
Professor Maciej Szwałt

12<sup>45</sup>-12<sup>55</sup> WOJCIECH KUJAWSKI  
*Opening of the Competition for the Young Scientists*

#### Komisja Konkursowa / The Competition Board:

Professor Wojciech Kujawski – The Chairman (not involved in evaluation and voting)

#### Komisja Oceniająca / The Evaluation Board:

Professor Andrzej Chwojnowski (oral and poster presentations)

Professor Marek Gryta (oral and poster presentations)

Professor Nalan Kabay (oral presentations)

Professor Małgorzata Kabsch-Korbutowicz (oral and poster presentations)

Professor Joanna Kujawa (poster presentations)

Professor Jacek Wiśniewski (oral and poster presentations)

12<sup>55</sup>-13<sup>10</sup> MARIAN TUREK, KRZYSZTOF PIOTROWSKI, PIOTR DYDO, KRZYSZTOF MITKO,  
EWA BERNACKA, AGATA JAKÓBIK-KOLON  
*Mathematical modeling of scaling-free membrane module by combining residence time distribution, metastability, and induction time*

13<sup>10</sup>-13<sup>25</sup> SADIK RAHMAN, SAJJAD AHMAD SIDDIQI, ABDULLAH AL-MAMUN  
*Improved treatment of leachate mixed municipal wastewater using bio-electrochemical desalination cell and natural clay adsorption with simultaneous energy production*

13<sup>25</sup>-13<sup>40</sup> MOHAMMAD EBRAHIMI, WOJCIECH KUJAWSKI  
*Ionic liquids based membranes for high-temperature proton exchange membrane fuel cells (HT PEMFC)*

13<sup>40</sup>-13<sup>55</sup> BARBARA TOMASZEWSKA, MAGDALENA TYSZER  
*Use of treated geothermal waters for irrigation of lettuce crops*

13<sup>55</sup>-14<sup>10</sup> ADAM ANDRZEJEWSKI, MARTYNA KRAJEWSKA, MATEUSZ SZCZYGIĘDA,  
KRYSTYNA PROCHASKA  
*Concentration of aqueous pectin solution using forward osmosis*

14<sup>10</sup>-14<sup>25</sup> PATTHRANIT NARUEWORANON, WOJCIECH KUJAWSKI, LAKKANA LAOPAIBOON,  
PATTANA LAOPAIBOON  
*Acetone-butanol-ethanol (ABE) fermentation coupled with in situ products recovery by using a hybrid method: gas stripping followed by pervaporation*

14<sup>25</sup>-14<sup>40</sup> GUOQIANG LI, WOJCIECH KUJAWSKI, KATARZYNA KNOZOWSKA, JOANNA KUJAWA  
*Fabrication of thin film PDMS/PEI and PEBAX/PEI composite hollow fiber membranes for CO<sub>2</sub>/N<sub>2</sub> separation*

14<sup>40</sup>-15<sup>15</sup> **PRZERWA / BREAK**

15<sup>15</sup>-17<sup>45</sup> **SESJA POSTEROWA / POSTER SESSION**

### IV. Przewodniczący / Chairpersons:

Professor Ludomira Granicka  
Professor Marek Bryjak

18<sup>00</sup>-18<sup>45</sup> **KONCERT online / online CONCERT** (the Wrocław String Quartet CONTINUO)

19<sup>00</sup>-21<sup>00</sup> **SPOTKANIE online / online MEETING**

## 11.06.2021, PIĄTEK / FRIDAY

### V. Przewodniczący / Chairpersons:

Professor Krystyna Prochaska

Professor Maria Szpakowska

Professor Stanisław Koter

9<sup>00</sup>-9<sup>15</sup> KACPER SZYMAŃSKI, DOMINIKA DAROWNA, ADAM CZYŻEWSKI, PAULINA SIENKIEWICZ,  
SYLWIA MOZIA

*Investigations on ultrafiltration polyethersulfone membranes modified with titanate  
nanotubes of various characteristics*

9<sup>15</sup>-9<sup>30</sup> DANIEL POLAK, JUSTYNA SUŁKOWSKA, MACIEJ SZWAST

*The influence of surfactant Pluronic P123 addition on the mixed matrix membrane PEBA  
2533 – ZIF-8 separation properties*

9<sup>30</sup>-9<sup>45</sup> JOANNA KUJAWA, SAMER AL-GHARABLI, KATARZYNA PIANKA, WOJCIECH KUJAWSKI

*Biomimetic separation materials with designed topography and chemistry for membrane  
processes*

9<sup>45</sup>-10<sup>00</sup> ANNA SIEKIERKA

*Cobalt-selective membranes for cobalt recovery from lithium spent batteries by  
electrodialysis*

10<sup>00</sup>-10<sup>15</sup> KRZYSZTOF MITKO, MARIAN TUREK, PIOTR DYDO

*Hybrid membrane-evaporative system for a near-ZLD utilization of coal mine brine*

10<sup>15</sup>-10<sup>30</sup> MATEUSZ SZCZYGIELDA, ADAM ANDRZEJEWSKI, KRYSZYNA PROCHASKA

*New membrane-based ways of recovery of alpha ketoglutaric acid from fermentation broth*

10<sup>30</sup>-10<sup>45</sup> IRENEUSZ MIESIĄC, BEATA RUKOWICZ, MAŁGORZATA GWIZD

*Recovery of carboxylic acids by electrodeionization*

10<sup>45</sup>-11<sup>00</sup> AGNIESZKA MIŚKIEWICZ, GRAŻYNA ZAKRZEWSKA-KOŁTUNIEWICZ

*Application of bio-sorbents in UF/sorption hybrid processes for removal of selected  
radionuclides from low-level radioactive waste*

11<sup>00</sup>-11<sup>15</sup> EWA MARJAŃSKA, MARIA SZPAKOWSKA, PRZEMYSŁAW DMOWSKI

*The possibility of application of the potentiometric sensor with all-solid-state electrodes  
containing lipid-polymer membranes for classification of tested black leaf teas in terms of  
their quality*

11<sup>15</sup>-11<sup>45</sup> **ROZSTRZYGNĘCIE KONKURSU DLA MŁODYCH NAUKOWCÓW  
THE RESULTS OF THE COMPETITION FOR YOUNG SCIENTISTS**

11<sup>45</sup>-11<sup>55</sup> **ZAKOŃCZENIE KONFERENCJI / CLOSING OF THE CONFERENCE**

## SESJA POSTEROWA / POSTER SESSION

Czwartek / Thursday, 10.06.2021, 15<sup>15</sup>-17<sup>45</sup>

1. ROBERT KOWALIK, JAROSŁAW GAWDZIK, JOLANTA LATOSIŃSKA  
*Risk analysis of heavy metals accumulation in soil from sewage sludge of wastewater treatment plant operating in MBR technology*
2. DARIA BOŻEJEWICZ, KATARZYNA WITT, MAŁGORZATA A. KACZOROWSKA  
*The comparison of separation of copper(II) ions (solvent extraction and polymer inclusion membrane) from the aqueous solutions using a 2,6-diaminopyridine*
3. GRZEGORZ WICIAK, KRZYSZTOF GRZYWNOWICZ, LESZEK REMIORZ, KATARZYNA JANUSZ-SZYMAŃSKA  
*Energy efficiency of polyimide membrane modules for air separation in zero-emission power plants: computational analysis*
4. DANIEL POLAK, IZABELA TONECKA, WOJCIECH FABIANOWSKI, MACIEJ SZWAST  
*Development of graphene oxide-coated membranes to support the process of removing pharmacological agents from water*
5. IZABELA ZIMOCZ, DOMINIK MROCZKO  
*Ozone assisted photolysis process in reduction of selected micropollutants from nanofiltration retentate*
6. ANNA LEMPART-RAPACEWICZ, EDYTA KUDLEK, MARIUSZ DUDZIAK, JOANNA WYCZARSKA-KOKOT, JAKUB COPIK  
*Application of membrane techniques to support swimming pool water treatment*
7. ANNA GRZECZKOWICZ, ANGELIKA KWIATKOWSKA, MONIKA DRABIK, LUDOMIRA GRANICKA  
*Neuronal cells nanoencapsulation for cryopreservation purposes for biomedical applications*
8. MONIKA WASYLECZKO, WIOLETA SIKORSKA, MAŁGORZATA PRZYTULSKA, JUDYTA DULNIK, ANDRZEJ CHWOJNOWSKI  
*Polyester membranes as 3D scaffolds for cell culture*
9. WIOLETA SIKORSKA, MAŁGORZATA PRZYTULSKA, MONIKA WASYLECZKO, CEZARY WOJCIECHOWSKI, JULIUSZ LECH KULIKOWSKI, ANDRZEJ CHWOJNOWSKI  
*Influence of hydrolysis, solvent and PVP addition on the porosity of PSF/PUR blend partly degradable hollow fiber membranes evaluated using the MeMoExplorer software*
10. MAREK GRYTA  
*The influence of inorganic fillers on the degradation of polypropylene membranes during membrane distillation*
11. MICHAŁ BODZEK, KRYSZYNA KONIECZNY, ANNA KWIECIŃSKA-MYDLAK  
*Nano-photocatalysis in water and wastewater treatment*
12. MICHAŁ BODZEK, KRYSZYNA KONIECZNY  
*Nanomaterials in membrane water desalination*

13. EDYTA KUDLEK  
*UV/O<sub>3</sub> and UV/H<sub>2</sub>O<sub>2</sub> processes in the decomposition on waste streams generated during membrane filtration process*
14. KRZYSZTOF PIOTROWSKI, PIOTR SAKIEWICZ, KLAUDIUSZ GOŁOMBEK  
*Halloysite – nanostructural component in multiphase mixed matrix membranes – selected applications and prospects*
15. EWA PUSZCZAŁO, GABRIELA KAMIŃSKA, JOLANTA BOHDZIEWICZ  
*TiO<sub>2</sub> and halloysite modified ultrafiltration membranes for treatment of WWTP effluent*
16. BEATA FRYCZKOWSKA, ALICJA MACHNICKA, DOROTA BINIAŚ, CZESŁAW ŚLUSARCZYK, JANUSZ FABIA  
*The influence of graphene addition on the properties of composite membranes rGO / PAN and their potential application for water disinfection*
17. BEATA FRYCZKOWSKA, LUCYNA PRZYWARA  
*Application of ultrafiltration composite membranes rGO / PAN for removing microplastic from industrial wastewater*
18. KATARZYNA MORACZEWSKA-MAJKUT, WITOLD K. NOCŃ, EWA ŁOBOS-MOYSA  
*Microplastic - new challenges in separation techniques*
19. IGOR KOGUT, MACIEJ SZWAST, STEPHAN HUSSY, DANIEL POLAK, ANJA GERHARDTS, WOJCIECH PIĄTKIEWICZ  
*Evaluation of wastewater reuse in commercial laundries: a pilot field study*
20. ALEKSANDRA KLIMONDA, IZABELA KOWALSKA  
*Sequential process: membrane filtration and ion exchange as an effective method for water solution purification containing cationic surfactants*
21. KATARZYNA IGNATOWICZ, JACEK PIEKARSKI  
*Removal of selected carbamate pesticides from aqueous solutions using coconut sorbents*
22. JANINA PIEKUTIN, URSZULA KOTOWSKA, JOANNA STRUK-SOKOŁOWSKA  
*Removal of selected heterocyclic organic compounds from water and possibilities of system optimization*
23. EWA ŁOBOS-MOYSA, EDYTA KUDLEK  
*Removal of organic compounds in the pretreatment of brackish industrial waste streams*
24. KRZYSZTOF CZERWIONKA, RAFAŁ TYTUS BRAY  
*Removal of dissolved and colloidal organic nitrogen fractions from secondary effluent in the process of coagulation with iron salts*
25. MAŁGORZATA PASEK, ANNA POLIWODA, PIOTR P. WIECZOREK  
*Determination of phenolic compounds in surface waters using high performance liquid chromatography (HPLC) and molecularly imprinted solid phase extraction (MISPE)*

26. AGNIESZKA URBANOWSKA, MAŁGORZATA KABSCH-KORBUTOWICZ,  
IZABELA POLOWCZYK  
*Treatment of municipal waste biogas plant digestate using physico-chemical and membrane processes*
27. KRYSZYNA PROCHASKA, MATEUSZ SZCZYGIĘDA, ADAM ANDRZEJEWSKI,  
BEATA KONOPCZYŃSKA  
*Separation of carboxylic acids from post-fermentation broth in multi-stage membrane systems*
28. MATEUSZ SZCZYGIĘDA, MARTYNA KRAJEWSKA, ADAM ANDRZEJEWSKI,  
KRYSZYNA PROCHASKA  
*Concentration of alpha-ketoglutaric acid solutions using forward osmosis process*
29. ADAM ANDRZEJEWSKI, MATEUSZ SZCZYGIĘDA, KRYSZYNA PROCHASKA  
*Optimisation of lactic acid separation from actual post-fermentation broth using nanofiltration*
30. MARIA SZPAKOWSKA, JAKUB SZWACKI, EWA MARJAŃSKA  
*Potentiometric sensor containing set of ion selective electrodes with lipid modified membranes for quality assessment of tested non-alcoholic beverages*
31. ELWIRA BRODNICKA, MARIA SZPAKOWSKA  
*Potentiometric sensor with lipid - polymer membranes for quality assessment of French red wines*
32. BARBARA TOMASZEWSKA, MAREK BRYJAK, LESZEK PAJĄK, NALAN KABAY,  
ENVER GÜLER, MAGDALENA TYSZER  
*Perspective for the recovery of energy from the salinity gradient on the basis of geothermal water - indication of key technical and energy issues*
33. MAGDALENA TYSZER, BARBARA TOMASZEWSKA, MICHAŁ BODZEK  
*Evaluation of the use of selected NF membranes in desalination of geothermal waters - tests with different water mineralization and variable boron and arsenic content*
34. EWA BERNACKA, PIOTR DYDO, DYMISTR CZECHOWICZ, MARIAN TUREK,  
KRZYSZTOF MITKO  
*Application of waste glycerol as a draw solution for forward osmosis*
35. KRZYSZTOF MITKO, MARIAN TUREK  
*Pilot plant test of single pass electrodialysis reversal system*
36. DOROTA BABILAS, PIOTR DYDO  
*Recovery of selected ionic liquids from aqueous solutions by electrodialysis method*
37. MARTYNA GRZEGORZEK, KATARZYNA MAJEWSKA-NOWAK  
*Influence of current density on fluoride removal during batch electrodialysis*
38. STANISŁAW KOTER, GUOQIANG LI, WOJCIECH KUJAWSKI  
*Modeling of separation of two gas mixture in the hollow fiber module*

39. GRZEGORZ WICIAK, ALEKSANDRA JANUSZ-CYGAN, KATARZYNA JANUSZ-SZYMAŃSKA, MAREK TAŃCZYK  
*Determination of the effective working surface of polymer membranes for the carbon dioxide separation*
40. KATARZYNA JANUSZ-SZYMAŃSKA, JANUSZ KOTOWICZ  
*Energy consumption of the hydrogen separation process from a mixture with natural gas*
41. KATARZYNA WITT, DARIA BOŻEJEWICZ, MAŁGORZATA A. KACZOROWSKA  
*The influence of chemical structure of carrier molecules on metal ions transport across polymer inclusion membranes*
42. DARIA BOŻEJEWICZ, BORYS OŚMIAŁOWSKI, MAŁGORZATA A. KACZOROWSKA, KATARZYNA WITT  
*The use of 2,6-bis((benzoyl-R)amino)pyridine (R=H, 4-Me, and 4-NMe<sub>2</sub>) derivatives as effective compounds for the removal of Cu(II), Ni(II), Co(II) and Zn(II) ions from aqueous solutions by membrane extraction processes and classical solvent extraction*
43. DARIA BOŻEJEWICZ, MAŁGORZATA A. KACZOROWSKA, KATARZYNA WITT  
*Recent advances in the recovery of precious metals (Au, Ag, Pd) from acidic and WEEE solutions by solvent extraction and polymer inclusion membrane processes – a mini-review*
44. ELŻBIETA RADZYMIŃSKA-LENARCIK, MAŁGORZATA ULEWICZ, ILONA PYSZKA  
*Transport and separation of silver and zinc ions through polymer inclusion membranes with alkylimidazole and their recovery from real samples*
45. ELŻBIETA RADZYMIŃSKA-LENARCIK, ILONA PYSZKA, WŁODZIMIERZ URBANIAK  
*Cd(II) and Pb(II) extraction and transport through polymer inclusion membrane with 1-alkylimidazole*
46. ANNA KOWALIK-KLIMCZAK, MACIEJ ŻYCKI, MONIKA ŁOŻYŃSKA, CHRISTIAN SCHADEWELL, THOMAS FIEHN, BOGUSŁAW WOŹNIAK, BERNADETTA KAŻMIERCZAK, MONIKA FLISEK  
*New valorisation pathway from chromium tanned wastes by thermal hydrolysis integrated with membrane processes*
47. ANNA KWIECIŃSKA-MYDLAK, WŁODZIMIERZ SIERADZKI, BARBARA JAGUSTYN, KAROLINA WODZISŁAWSKA  
*The use of membrane filtration for removal of aluminum from drinking water sources*
48. IRENA KORUS  
*Ultrafiltration enhanced with poly(sodium acrylate) as an effective method for separation of heavy metals from multicomponent solutions*
49. MARIOLA RAJCA, RAFAL BRAY, ALEKSANDRA SOKOŁOWSKA  
*Granulometric analysis of TiO<sub>2</sub> particles in aspect of membrane filtration*