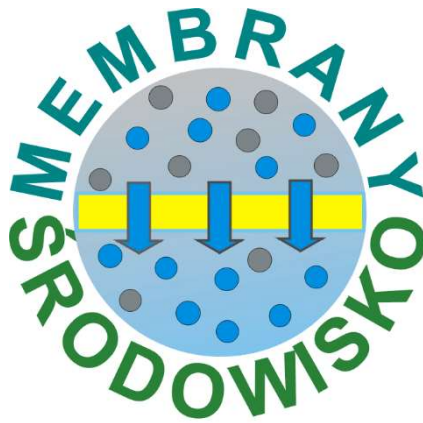


**XIV Konferencja Naukowa  
„Membrany i Procesy Membranowe  
w Ochronie Środowiska”**

**MEMPEP 2023**

**21 – 24 czerwca 2023, Zakopane/Kościelisko**

**PROGRAM**



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

**MEMPEP 2023**

**June 21 – 24, 2023, Zakopane/Kościelisko, Poland**

**PROGRAMME**

**21.06.2023, ŚRODA / WEDNESDAY**

**16<sup>00</sup> – 22<sup>00</sup> PRZYJMOWANIE UCZESTNIKÓW / RECEPTION OF PARTICIPANTS**

**18<sup>00</sup> - 22<sup>00</sup> KOLACJA / SUPPER**

**22.06.2023, CZWARTEK / THURSDAY**

**8<sup>00</sup>-9<sup>00</sup> ŚNIADANIE / BREAKFAST**

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

**I. Sesji przewodniczą / Chairpersons:**

Professor Grażyna Zakrzewska-Koltuniewicz  
Professor Michał Bodzek

9<sup>05</sup>-9<sup>50</sup> MARIA ELEKTOROWICZ

*Combined electrochemical and membrane processes applied to wastewater and sludge treatment*

9<sup>50</sup>-10<sup>00</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 Maria Elektorowicz ♦ Professor Marek Bryjak ♦ Professor Marek Gryta ♦

Professor Sylwia Mozia ♦ Professor Marian Turek

Sekretarz / Secretary: Dr Edyta Kudlek

10<sup>00</sup>-10<sup>20</sup> GUOQIANG LI, KATARZYNA KNOZOWSKA, JOANNA KUJAWA, WOJCIECH KUJAWSKI

*PEBAX® 2533-zeolitic imidazolate framework mixed matrix membrane for the separation of carbon dioxide*

10<sup>20</sup>-10<sup>40</sup> DI WANG, CORINNE CHAPPEY, NICOLAS DESILLES, KATERYNA FATYEYeva

*Influence of the composition of polysulfone-based dense composite membranes on the CO<sub>2</sub> gas separation performance*

10<sup>40</sup>-11<sup>00</sup> WALDEMAR JANKOWSKI, JOANNA KUJAWA

*Cinnamic acid as a natural membrane modifier for membrane distillation*

**11<sup>00</sup>-11<sup>30</sup> PRZERWA / COFFEE BREAK**

**II. Sesji przewodniczą / Chairpersons:**

Professor Krystyna Prochaska

Professor Wojciech Piątkiewicz

11<sup>30</sup>-11<sup>50</sup> ZUZANNA FLANC, JOANNA KUJAWA

*Membrane materials inspired by nature for membrane emulsification with potential use in the cosmetics industry*

11<sup>50</sup>-12<sup>10</sup> KATARZYNA PIANKA, JOANNA KUJAWA

*Fabrication of re-entrant surfaces with lanthanide nanoparticles via click chemistry for membrane distillation*

12<sup>10</sup>-12<sup>30</sup> MOHAMMAD EBRAHIMI, KATERYNA FATYEYeva, WOJCIECH KUJAWSKI

*New ionic conducting composite membrane based on ionic liquids for fuel cell application*

- 12<sup>50</sup>-13<sup>30</sup> Sesja dedykowana sylwetkom i dokonaniom śp. prof. Anny Narębskiej, dr Elżbiety Radzywińskiej-Lenarcik, dr. Andrzeja Warszawskiego, dr. Marka Staniszewskiego  
A tribute to the late Prof Anna Narębska, Dr Elżbieta Radzywińska-Lenarcik, Dr Andrzej Warszawski, Dr Marek Staniszewski
- 13<sup>30</sup>-14<sup>30</sup> **OBIAD / LUNCH**
- 15<sup>00</sup>-17<sup>00</sup> **SESJA POSTEROWA / POSTER SESSION**
- 18<sup>00</sup> **OGNISKO / BONFIRE (BARBECUE)**

**23.06.2023, PIĄTEK / FRIDAY**

**8<sup>00</sup>-9<sup>00</sup> ŚNIADANIE / BREAKFAST**

**III. Sesji przewodniczą / Chairpersons:**

Dr Katarzyna Witt  
Professor Stanisław Koter

9<sup>00</sup>-9<sup>20</sup> KAROLINA CHOJNACKA-GÓRKA, DANUTA DUTCZAK, ANNA SOBOLEWSKA,  
IZABELA STRUŻYŃSKA-PIRON, ÉLINE PATTYN, KEES VAN DER KAMP, DANY PATTYN  
*A further development of the liquid-liquid porometry for ultra- and nanofiltration flat sheet and hollow fiber membranes*

9<sup>20</sup>-9<sup>40</sup> JOANNA KUJAWA, MANON LANGUE, ZUZANNA FLANC, WALDEMAR JANKOWSKI,  
SAMER AL-GHARABLI, ANTONY SZYMZYK, WOJCIECH KUJAWSKI  
*Role of carbon nanotubes in PVDF-based membranes*

9<sup>40</sup>-10<sup>00</sup> MACIEJ SZWAST, DANIEL POLAK, ILANA PERELSHEIN, AHARON GEDANKEN,  
ANDRZEJ KRASIŃSKI, MICHAŁ STOR, WOJCIECH PIĄTKIEWICZ, WOJCIECH FABIANOWSKI  
*Research on structural and process properties of polysulfone membranes modified by CuO*

10<sup>00</sup>-10<sup>20</sup> MARIAN TUREK, KRZYSZTOF MITKO, PAWEŁ SKÓRA  
*Sensitivity of the energy efficiency of evaporated salt production from mine brine to variations in its composition*

10<sup>20</sup>-10<sup>40</sup> MARCIN SKRZYPEK, PAWEŁ CZECZKO, JÓZEF SKRZYPEK  
*Ceramic microfiltration as a pretreatment method prior to reverse osmosis*

**10<sup>40</sup>-11<sup>10</sup> PRZERWA / COFFEE BREAK**

**IV. Sesji przewodniczą / Chairpersons:**

Professor Joanna Kujawa  
Professor Maciej Szwast

11<sup>10</sup>-11<sup>30</sup> SYLWIA MOZIA, REVATHY RAJAKUMARAN, KACPER SZYMAŃSKI  
*Treatment of surface water contaminated with ketoprofen: submerged photocatalytic membrane reactor vs. membrane distillation unit*

11<sup>30</sup>-11<sup>50</sup> KACPER SZYMAŃSKI, SYLWIA MOZIA  
*Investigations on ketoprofen removal in a submerged photocatalytic membrane reactor under solar light*

11<sup>50</sup>-12<sup>10</sup> IZABELA ZIMOCZ, AGATA KOSZYKA  
*Limits of using membrane technologies in public water supply systems*

12<sup>10</sup>-12<sup>30</sup> Rozstrzygnięcie konkursu dla młodych naukowców oraz przyznanie nagrody naukowej PTMem za najlepszy doktorat w latach 2021 – 2022.

The announcement of the results of the competition for young scientists and the awarding of the PTMem scientific prize for the best PhD dissertation in 2021-2022.

12<sup>30</sup>-13<sup>10</sup> Jubileusz 70-lecia urodzin prof. dr. hab. inż. Marka Bryjaka  
The 70<sup>th</sup> Anniversary of Professor Marek Bryjak's Birthday

13<sup>10</sup>-14<sup>10</sup> **OBIAD / LUNCH**

14<sup>20</sup>-18<sup>20</sup> **WYCIECZKA / EXCURSION**

19<sup>00</sup> **UROCZYSTA KOLACJA** (w przerwie, o godz. 20.00, koncert – Wrocławski Kwartet Smyczkowy CONTINUO) / **CONFERENCE DINNER** (at 8 p.m. – concert – the Wrocław String Quartet CONTINUO)

#### 24.06.2023, SOBOTA / SATURDAY

8<sup>00</sup>-9<sup>00</sup> **ŚNIADANIE / BREAKFAST**

V. Sesji przewodniczą / Chairpersons:

Dr Anna Siekierka  
Dr Ireneusz Miesiąc

9<sup>00</sup>-9<sup>20</sup> WIRGINIA TOMCZAK  
*Studies on the long-term stability of the selected polymeric membranes*

9<sup>20</sup>-9<sup>40</sup> MAREK ROGUSKI, HANNA JAROSZEK  
*Practical aspects of designing and cost estimation of pilot plants*

9<sup>40</sup>-10<sup>00</sup> MATEUSZ SZCZYGIELDA, ADAM ANDRZEJEWSKI, MARTYNA KRAJEWSKA, PIOTR OLEŚKOWICZ-POPIEL, DARIA SZYMANOWSKA, KRYSZYNA PROCHASKA  
*Osmotic concentration of fermentation broths using plate and frame and hollow-fiber membrane modules*

10<sup>00</sup>-10<sup>20</sup> KRZYSZTOF MITKO, MARIAN TUREK, PIOTR DYDO, PAWEŁ SKÓRA, KLAUDIA TYRAŁA, ALEKSA WARZECHA  
*Brine utilization in a hybrid electrodialysis-reverse osmosis system*

10<sup>20</sup>-10<sup>50</sup> **PRZERWA / COFFEE BREAK**

VI. Sesji przewodniczą / Chairpersons:

Dr Wirginia Tomczak  
Dr Krzysztof Mitko

10<sup>50</sup>-11<sup>10</sup> ANNA SIEKIERKA  
*Cobalt recovery from battery effluent wastes via electrodialysis*

11<sup>10</sup>-11<sup>30</sup> IRENEUSZ MIESIAC, BEATA RUKOWICZ  
*Soap splitting by electrodeionization*

11<sup>30</sup>-11<sup>50</sup> ANNA LEMPART-RAPACEWICZ, ANNA MIKA-SHALYHA, JACEK WYLĘŻEK, JOANNA WYCZARSKA-KOKOT, EDYTA KUDLEK  
*The use of membrane techniques as a way to reduce the need for supplemental water in swimming pool facilities*

11<sup>50</sup>-12<sup>00</sup> **ZAKOŃCZENIE KONFERENCJI / CLOSING OF THE CONFERENCE**

12<sup>00</sup>-13<sup>00</sup> **OBIAD / LUNCH**

## SESJA POSTEROWA / POSTER SESSION

Czwartek / Thursday, 22.06.2023, 15<sup>00</sup>-17<sup>00</sup>

1. DARIA BOŻEJEWICZ, KATARZYNA WITT, MAŁGORZATA A. KACZOROWSKA  
*Comparison of the properties and effectiveness of polymer membranes containing acetyloacetone as a carrier and various polymers and plasticizers, intended for removing cadmium(II) ions from aqueous solutions*
2. IZABELA GORTAT, JOANNA MARSZAŁEK, PAWEŁ WAWRZYŃIAK  
*Desalination of thermal waters using selected membrane techniques*
3. JUSTYNA NOWICKA, ANNA SIEKIERKA  
*Selective separation of cobalt and other metals using electrodialysis*
4. KORNELIA PYŻEWICZ, RAFAŁ TYTUS BRAY, KAROLINA FITOBÓR  
*Coagulation as an initial process of grey water preparation for subsequent purification processes using membrane technologies*
5. MILENA NOCOŃ, IRENA KORUS  
*Research on the possibility of separating heavy metals from metallurgical waste using the extraction and nanofiltration process*
6. KATARZYNA MORACZEWSKA-MAJKUT, EDYTA KUDLEK, BARBARA PIECZYKOLAN, WITOLD K. NOCOŃ, KAROLINA ŻBIKOWSKA, KRZYSZTOF BĘDKOWSKI, WERONIKA KAROLCZYK, KATARZYNA PYSZKA, NATALIA NOWAK  
*Application of membrane filtration and adsorption processes in the removal of micropollutants released from microplastics*
7. GRZEGORZ WICIAK, KAMILA SZYKOWSKA, KATARZYNA JANUSZ-SZYMAŃSKA  
*Applying membrane techniques to separate hydrogen from natural gas for hydrogen technologies*
8. MICHAŁ BODZEK, ALINA POHL  
*Micro- and nanoplastics removal from water environment*
9. EWA MARJAŃSKA, MARIA SZPAKOWSKA  
*Potentiometric taste sensor with liquid membranes for food quality control. A systematic review*
10. STANISŁAW KOTER  
*Diffusion dialysis of  $H_2SO_4+MSO_4$  mixture - modeling with the software COMSOL Multiphysics*
11. STANISŁAW KOTER, ANDRIY YAROSHCHUK  
*Electrokinetic, electrochemical and osmotic properties of a monolayer nanoporous membrane determined from measurements of transient filtration potential*
12. MARIUSZ BANACH, WOJCIECH CYPLIK, WOJCIECH KUJAWSKI  
*Pressure driven membrane processes applied for recovery and concentration of anthocyanins*

13. DOROTA BABILAS, PIOTR DYDO  
*Study on the electrodialytic recovery of 1-butyl-3-methylimidazolium hydrogen sulfate from aqueous solution*
14. HANNA JAROSZEK, PAULINA COPIK, AGNIESZKA KORUS  
*Flow-electrode capacitive deionization (FCDI) in desalination: the effect of membrane type*
15. KATARZYNA IGNATOWICZ, JACEK PIEKARSKI  
*Application of selected pesticides from aqueous solution using natural sorbents*
16. IZABELA ZIMOCZ, ŁUKASZ CZOPIK  
*Microbiological water safety in risk management of water supply systems - case study of the Silesian Agglomeration, Poland*
17. IZABELA ZIMOCZ, ALEKSANDRA GÓRSKA, ŁUKASZ WEBER  
*Trihalomethanes in miocen water, occurrence and removal - case study, Środa Wielkopolska, Poland*
18. EDYTA KUDLEK, RAFAŁ RAPACEWICZ, ANNA LEMPART-RAPACEWICZ  
*Evaluation of the effectiveness of membrane processes in rainwater treatment*
19. KATARZYNA RYCHLEWSKA, KAROLINA WODZIŚLAWSKA-PASICH  
*Production of drinking water from surface and groundwater by nanofiltration*
20. KATARZYNA RYCHLEWSKA, TOMASZ RADKO, ADAM CYGAN  
*Geopolymer-zeolite membranes based on combustion by-products*
21. ANNA KOWALIK-KLIMCZAK, MACIEJ ŻYCKI  
*Preliminary study for develop method of end-of-life polymer membranes utilisation*
22. MAREK GRYTA, PIOTR WOŹNIAK  
*Separation of car wash wastewaters by ultrafiltration*
23. JOANNA MARSZAŁEK, RENATA ŻYŁŁA  
*Integrated membrane techniques for desalination of textile wastewater*
24. JANINA PIEKUTIN, URSZULA KOTOWSKA, DARIUSZ KIEJZA, MONIKA PUCHLIK  
*Integrated methods of obtaining resources that are difficult to decompose*
25. ADAM ANDRZEJEWSKI, MATEUSZ SZCZYGIĘŁDA, MARTYNA KRAJEWSKA, KRYSZYNA PROCHASKA  
*Research and optimization of the concentration process of water solutions of pectin using the forward osmosis technique*
26. IZABELA ZIELIŃSKA, DANIEL POLAK, HANNA NURCZYŃSKA, MACIEJ SZWAST, PAWEŁ GIERYCZ  
*Analysis of the process of pharmaceutical substances removal from model wastewater using membranes modified with calcium carbonate*
27. DANIEL POLAK, MACIEJ SZWAST  
*Development of heterogenous capillary membranes with programmable properties made of PEBA copolymer for CO<sub>2</sub> removal and testing their properties*

28. GRZEGORZ WICIAK, KATARZYNA JANUSZ-SZYMAŃSKA, ALEKSANDRA JANUSZ-CYGAN, ANNA PAWLACZYK-KUREK  
*Swelling and plasticization of the polymer membrane under the influence of contaminants containing hydrogen sulfide*
29. KATARZYNA WITT, MAŁGORZATA A. KACZOROWSKA, DARIA BOŻEJEWICZ  
*Comparison of binding efficiency of toxic Hg(II) ions from aqueous solutions using ionic liquids*
30. MAŁGORZATA A. KACZOROWSKA, DARIA BOŻEJEWICZ, KATARZYNA WITT  
*Application of Aliquat 336 ionic liquid and deep eutectic mixture containing Aliquat 336 and diacetamide as carriers in polymer membranes for removing Cu(II) and Zn(II) ions from computer scrap*
31. IRENA KORUS  
*Separation of heavy metals from multicomponent mixtures using ultrafiltration enhanced with complexing polymer*