

## Press release

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<http://www.efce.org>

### **EFCE and EMS present joint Membrane Engineering Excellence Award to Dr. Zhiwei Jiang for research work on ultrathin films for molecular sieving**

**Dr. Zhiwei Jiang** has been named this year's winner of the **EFCE-EMS Joint Excellence Award in Membrane Engineering** for his outstanding work published in two seminal research papers. The studies, titled "Aligned Macrocyclic Pores in Ultrathin Films for Accurate Molecular Sieving" by Zhiwei Jiang (*Nature* (2022) 609 p58-64), and "A Smart and Responsive Crystalline Porous Organic Cage Membrane with Switchable Pore Apertures for Graded Molecular Sieving" co-authored by Ai He and Zhiwei Jiang (*Nature Materials* (2022) 21, 4, p 463-470), represent significant advancements in our understanding and application of membrane technologies. His research contributions, which began with making and characterising extremely thin polymer films (sub 10 nm) that could be used as the separating layer in composite membranes for separating mixtures of solutes in organic solvents, have led to the development of a new field in molecular separation – ultrathin, interfacially formed polymer films which enable creation of high permeance, high selectivity membranes.



The research detailed in these two papers is at the forefront of innovation in membrane technology, employing aligned macrocycles and crystalline porous organic cages (POCs) to create membrane pores with rigid and defined cavities.

The advancements have wide-ranging implications in membrane engineering, particularly in the areas of cascade processes and membrane chromatography which allows not only to enhance the product quality but also to increase the yield, making the extraction process more economically viable and environmentally friendly.

Zhiwei Jiang obtained his Master in chemical engineering (MEng) from University College London, United Kingdom, in 2012 and in 2017 he completed his PhD in chemical engineering at Imperial College London under the supervision of Prof. Andrew Livingston. This was followed by research associate positions at Imperial College London and the Queen Mary University of London. In August 2022 he joined the start-up company Exactmer Ltd. which is developing a molecular separation platform to produce defined monomer sequence polymers. At Exactmer he has started a successful membrane research team that feeds innovative materials through to the manufacturing function. Currently, he holds the position of Head of the Department of Membrane Research which comprises postdoctoral researchers to develop the next generation membranes for manufacturing oligonucleotide therapeutical drugs. He co-supervised

PhD students and postdoctoral researchers as an industrial advisor through collaborations with universities in EPSRC Programme grant to produce highly selective membranes.

The 2024 EFCE-EMS Joint Excellence Award in Membrane Engineering was presented to Zhiwei Jiang during a Special Session of EuroMembrane 2024, which was held in Prague, Czech Republic, on 8-12 September 2024.



Presentation of the certificate at the award ceremony (from left to right): Elena Tocci (EMS President) Zhiwei Zhang (Award winner), Karel Friess (EFCE Section and EMS Council Member) (photo: EMS)

Nominating him for the Award Prof. Livingston wrote: "Zhiwei Jiang is outstanding in all ways – as a scientist and as an engineer, as a builder and leader of collaborative teams, as an educator and mentor, and as a colleague. He has made major contributions to the field of chemical engineering through his university-based research; and he has moved now to industry where he leads a research team as part of a large, multidisciplinary collaboration with a commercial objective."

The Excellence Award is generously co-organised and supported by The European Membrane Society (EMS).



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### **Related links**

EFCE media centre (<https://www.efce.info/News>)

EFCE Section on Membrane Engineering  
([https://efce.info/Section\\_MembraneEngineering.html](https://efce.info/Section_MembraneEngineering.html))

International conference EuroMembrane 2024 (<https://euromembrane2024.cz/>)

EMS media centre (<https://www.emsoc.eu/ems-news/>);  
(<https://www.linkedin.com/groups/13512451/>); (<https://x.com/EUMembraneSoc>);  
(<https://www.youtube.com/c/EuropeanMembraneSocietyEMS>)

### **Notes to media**

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### **About chemical engineers**

Chemical, biochemical and process engineering is the application of science, maths and economics to the process of turning raw materials into everyday products. Professional chemical engineers design, construct and manage process operations all over the world. Oil and gas, pharmaceuticals, food and drink, synthetic fibres and clean drinking water are just some of the products where chemical engineering plays a central role.

### **About EFCE**

Founded in 1953, The European Federation of Chemical Engineering (EFCE) is a non-profit-making association, whose object is to promote co-operation in Europe between non-profit-making professional scientific and technical societies in 30 countries for the general advancement of chemical engineering and as a means of furthering the development of chemical engineering. See [www.efce.org](http://www.efce.org)

### **About EMS**

The European Membrane Society (<https://www.emsoc.eu>), founded in 1982, is an international non-profit organization whose aim is to promote cooperation between scientists and engineers involved in Research and Development in the field of synthetic membranes and membrane processes.