



EDITORIAL – Arrival of the 2nd EM3E-4SW edition

The welcome reception was scheduled on September 3rd in Montpellier for the 30 students of this 2nd edition, of 21 different nationalities (Armenia, Bangladesh, Brazil, Ecuador, Ethiopia, Ghana, Greece, India, Indonesia, Iran, Jordan, Kazakhstan, Malaysia, Mexico, Morocco, Pakistan, Palestine, Peru, Philippines, Portugal, Yemen). After several information meetings and administrative procedures, the common core of courses went on at the University of Montpellier throughout the month of September. At the end of this period the students participated in a two-day workshop dedicated to “State-of-the-art techniques for characterizing membranes”. The characterization of membranes is in fact crucial for membrane manufacturers, process stakeholders and researchers. Various methods for characterizing porous membranes were appraised, and their relative merits were discussed. The possibilities of combining the results of the different membrane-characterization techniques to gain a more complete picture of the membrane features were also addressed. A specific focus was done on membrane characterization including operando measurements and on-line techniques. The students had the opportunity to



exchange with the other attendees coming from Singapore, USA, the Netherlands and France. In the margins of this workshop the students had two lessons given by Professor Volodymyr Tarabara (Michigan State university, USA) dealing with concentration polarization and Hagen-Poiseuille equation, in the frame of the common course entitled “Characterization of porous materials”.

SPECIAL EVENT – 2nd annual e-conference (January 29th-30th 2019, Toulouse, France)

The second event in this series will be dedicated to "Limitations of membrane process: facts and solutions". It will take place at the University Paul Sabatier-Toulouse 3, on January 29th-30th, 2019.

The first day of the meeting will be dedicated to the oral presentations by the first year students of their individual projects prepared during the whole first semester. In addition, a lecture will be given by Professor Robert Field (Department of Engineering Science, University of Oxford, UK), specially invited by the EM3E-4SW consortium.

There will be an introduction to the educational program of semesters 2 and 3 given by representatives of the involved universities.

The second year students located in Lisbon (Portugal), Zaragoza (Spain) and Enschede (the Netherlands) will attend the event by videoconference. Prof Field's lecture will be recorded and archived on the website of the University of Montpellier's WebTV for future online viewing. Details will be given in the next newsletter about how to access to this new resource.

During the second day of the meeting, the EM3E-4SW consortium will discuss the improvement of the programme's quality and the future beyond EU financing.

Ye Wee SIEW, Malaysia - EM3E Edition 3 (2013-2015)

Currently working as a Global Product Manager at Aquaporin Asia Pte. Ltd., Singapore.



I made the decision to pursue a master's degree five years ago because I realised that there was a huge gap between what I had learnt in my bachelor's studies and the actual knowledge I require to excel in an industrial setting. I was looking for something unique and EM3E caught my eye. I applied for the program and never looked back. EM3E provided me with a holistic platform for an all-round exposure to all aspects of membrane science including process design and applications. Not to mention, the opportunity to study all over Europe.

At times, living in foreign countries can be quite challenging especially when you are not used to the weather and language is a barrier. My batch mates would often jokingly refer to our lifestyle as 'nomadic'. Once you are settled down in one country, it is time to move on to the next one. Of all the places I went, Lisbon will always hold a special place in my heart for the warm sunlight, fantastic food, friendly people and awesome professors.

I also had the opportunity to intern at Lanxess, a German RO membrane manufacturing company during my summer break where I dabbled in RO membrane R&D. Subsequently, I went back to Lanxess for my master's thesis in pH resistant nanofiltration.



Upon graduation, I joined Aquaporin's R&D team, developing a new generation of commercial biomimetic RO membranes. Two years ago, I switched over to a more commercial job scope, leveraging on my technical background to interact with customers.

The EM3E programme has provided me with a solid foundation to forge my career in the membrane industry. To

those who are still on the fence on whether to apply, wait no longer. It is time to take action and apply.

Last but not least, a big shout-out to my batch mates! You guys have made my EM3E journey memorable and thrilling.

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Edith Mawunya KUTORGLO, Ghana - EM3E Edition 3 (2013-2015)

Currently a Ph.D. Student in Chemical and Process Engineering at the University of Chemistry and Technology in Prague, Czech Republic working on the design of hierarchically porous materials for environmental applications, with a specific focus on carbon dioxide (CO₂) capture.

My interest in membranes began during my undergraduate project, which involved the development of a simplified equilibrium dialysis set-up to study the kinetics of methylene blue binding to bovine serum albumin. My then supervisor, Professor J. K. Sarfo, not only gave me the freedom to be intimately involved right from formulating the research plan and consulting technical literature, to setting up the apparatus and selecting the optimal membrane. He was very influential in shaping my decision to pursue a master's degree in Membrane Engineering. When I reviewed the programme website, I discovered its multidisciplinary nature coupled with close industrial collaboration and opportunities for experiencing at least three different cultures. That was when I knew the EM3E programme was the means by which I could lay a strong foundation for a research-based career. I am extremely grateful to my supervisor for the confidence he had in me and for his support, not least because the Erasmus Mundus programmes are highly competitive to get into.



Joining the EM3E programme was an incredible opportunity, although it was intense and challenging. I must admit I felt a little bit lost during the first few months, especially because coming from a Biochemistry background, the engineering aspects were new to me. One of the things I learned through this experience was perseverance: never give up and never be afraid to ask for help. Despite the extra hours I had to put in to catch up, I am also grateful to my amazing classmates who were so patient in explaining the engineering concepts to me.

The courses we followed provided in-depth coverage of key concepts within the framework of membrane materials and process design, as well as insights into hybrid technologies for the future. There were talks from researchers and industrial specialists, and field trips that put the relevance of the things we studied into professional perspective while also providing fantastic networking opportunities. For example, after a site visit to MemBrain s.r.o., I had the chance to do an internship there. Similarly, I did my master's thesis at the University of Bath, UK in the lab of Dr Darrell Patterson after meeting him during a lecture he gave in one of our EM3E seminars. All these experiences solidified my ambition to pursue a career in nanostructured materials research, and I credit the EM3E programme for offering me these opportunities.

Being accepted into a PhD program has many demands, such as creativity, the ability to multitask, dealing with people, and organizational and time-management skills. You have laboratory courses to teach, bachelor and master students to guide, conferences to attend, courses to pass, publications to write, seminars to attend, and still must make time to stay sane. I believe the EM3E programme was a very useful preparation for building my endurance and has given me a big head start in my PhD studies. Moreover, most of the techniques I learned during the master studies, particularly those focused on colloidal and porous material characterization (SEM, Hg porosimetry, nitrogen adsorption etc.), now form the core of my PhD research. I have also taken advantage of contacts I made during my second semester at UCT Prague, who I teamed up with during my PhD studies, to co-author three scientific publications.

Looking back, I feel very blessed to have had this opportunity of sharing this part of my life with people who I would otherwise never have met, but who become my lifelong friends. EM3E has invested so much in me and no matter where I find myself, I feel a responsibility to succeed.

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Call for application for admission to the master edition 2019-2021: Applications should be submitted before January 31st 2019 (admission with scholarship) or May 31st 2019 (admission without scholarship).

Sponsoring opportunities: EM3E-4SW offers you the possibility to sponsor the programme. We welcome contact from your organisation and are happy to discuss any idea which could facilitate the recruitment of EM3E-4SW students. Moreover, the second year of the master is available as vocational and education training (VET).

Please contact us by e-mail: em3e-4sw-project@umontpellier.fr **More information on:** <http://em3e-4sw.eu>