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ANDREW G. LIVINGSTON

Professor of Chemical Engineering
Department of Chemical Engineering
Imperial College, London (UK)
Director, Barrer Centre

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DEPARTMENT OF CIVIL, CHEMICAL, ENVIRONMENTAL AND MATERIALS ENGINEERING

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Room TA01,
Via Terracini 28

MEMBRANES FOR SEPARATING MOLECULES: WHERE ARE WE, AND WHERE ARE WE GOING?

ABSTRACT:

Membranes have had a huge impact on molecular separations in aqueous systems, especially for desalination where they can be used to separate water and salt. This can be achieved with far lower energy consumption than multiple effect evaporation, and so the Reverse Osmosis (RO) process using membranes has become well established. It is generally accepted that 40-70% of capital and operating costs in industries from refining to pharmaceuticals are dedicated to separations; and a substantial fraction of this cost is related to processing of organic liquids. Membrane technology has the potential to also provide game changing alternatives for the processing of organic liquids, in the same way that it has done for aqueous systems.

This presentation will describe why membranes have been so successful in RO, how polymer membranes are made, and what the current challenges for aqueous RO membranes are. It will then outline some of the research being undertaken at Imperial College to develop new membranes, for RO and for molecular separations in organic systems.