



**Wolfson Department of Chemical Engineering Seminar**

**Zoom Seminar**

**November 27, 2023 at 13:30**

**Zoom Seminar - <https://technion.zoom.us/j/92865592078>**

**“Boosting Membranes for CO<sub>2</sub> Capture and Hydrogen Purification”**

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**Abstract:** Although the majority of the world has now accepted that global climate change is due to human activities, we will not be able to switch gears and only go for “green energy” without fossil fuels for many decades. One way of contributing to combat climate change is to capture CO<sub>2</sub> from flue gases, while we slowly develop a “green way of living” by using clean energy of H<sub>2</sub> either in blue or green. Membranes will for sure represent one of the emerging technologies to be used for CO<sub>2</sub> capture and hydrogen purification. Facilitated transport and mixed matrix membranes show high separation performance for CO<sub>2</sub> capture from flue gas in power plants and energy-intensive industries. However, the technology development is not straightforward, and moving from a lab-scale module using a few cm<sup>2</sup> up to several m<sup>2</sup> of a pilot-scale module is particularly challenging. Moreover, blue hydrogen production from a steam methane reforming process by integration with a CO<sub>2</sub> capture unit using high-performance carbon molecular sieve membranes attracts great interest. This presentation will then report on the material development, module design and upscaling, and techno-economic feasibility analysis of different membranes for CO<sub>2</sub>-related separations.