

SOLVAY COLLOQUIUM (FORUM D)



Prof. Omar M. Yaghi

James and Neeltje Tretter Chair Professor of Chemistry
University of California, Berkeley

2024 Laureate of the Ernest Solvay Prize

How reticular chemistry will solve the climate and water problems, fast!

The clean air, clean energy, and clean water challenges facing our planet today impact our health, wealth, happiness, and future. These three stresses present difficult science and engineering problems as they require, among many aspects, the selective capture of small molecules (e.g. hydrogen, methane, carbon dioxide, and water). Our ability to capture, store, manipulate, and harness the power of these molecules in an efficient and economical manner is paramount to our success in building a sustainable future. The emerging field of reticular chemistry and materials has yielded extensive classes of nanoporous metal-organic frameworks and covalent organic frameworks. The flexibility with which these materials can be made, modified, and scaled bodes well for their integration into devices and providing robust solutions to these challenges. In this presentation, I will highlight how thirty years of establishing the basic science of reticular materials has led us to carbon capture from air and flue gas, and harvesting water from air to produce drinking water in various parts of the world regardless of temperature and humidity levels. Our efforts in taking this technology from the laboratory to the field including the design and engineering of prototypes will be discussed and the results presented. Time permitting, I will also highlight our results of how discovery of materials and their deployment can be accelerated by ChatGPT.

Wednesday 20 March 2024 at 4:30 P.M.

COFFEE AND TEA WILL BE SERVED AT 4:15 P.M IN FRONT OF THE **FORUM D**

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