

Expanding the chemical palette for reliable adsorption-based separations

Prof. David Sholl, School of Chemical & Biomolecular Engineering, Georgia Tech

The majority of research literature on chemical separations focuses on a relatively small collection of chemicals. In many ways this is appropriate because of the dramatic economic and environmental impacts of these species. The space of possible chemicals, however is vast; Carl Sagan's famous "billions and billions" is many orders of magnitude too small for chemical space. I will discuss early steps towards methods that may eventually allow rapid development of adsorbent-based separations for a diverse range of molecules drawn from a broad chemical space. I will also discuss recent attempts to quantify reproducibility of experimental data in adsorption, a topic that brings up wide-ranging issues in forming connections between basic discovery-oriented science and the practical application of materials in real-world separations.