

# Adsorptive Separation and Purification Processes

## Biomolecules Adsorption

- Encapsulation of biomolecules in porous adsorbents
- Protein adsorption on solid surfaces
- Pharmaceutical compounds removal from wastewater

## CO<sub>2</sub> Capture and Utilization

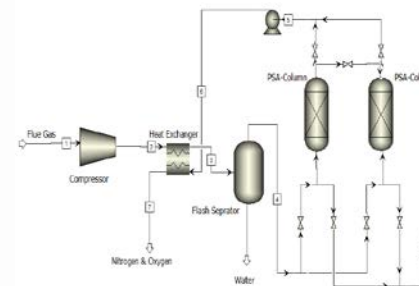
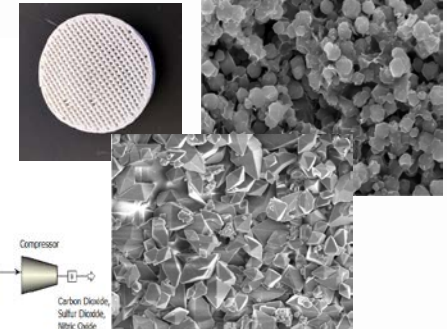
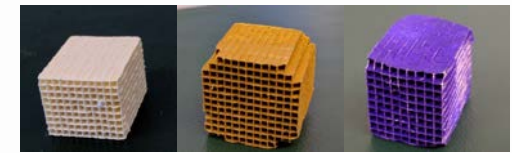
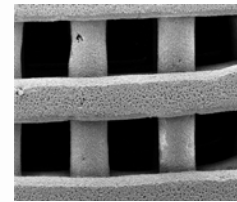
- 3D-printed monolith adsorbents for CO<sub>2</sub> capture

## Indoor Air Management

- CO<sub>2</sub> removal from indoor air and other enclosed environments
- VOC removal from indoor air

## Hybrid Separation Processes

- Direct CO<sub>2</sub> capture and utilization
- VOC capture and conversion
- Methane densification
- Hydrogen storage



## Application of advanced materials to novel separation processes

**PoC: Fateme Rezaei**, Assistant Professor  
College of Engineering and Computing  
Chemical & Biochemical Engineering

[rezaeif@mst.edu](mailto:rezaeif@mst.edu),

<http://web.mst.edu/~rezaeif>



## Funding

- National Science Foundation (NSF)
- National Aeronautics and Space Administration (NASA)

## Keywords

- #Adsorption, # Separations, #Purification, # Process design and optimization, # PSA/TSA processes

## Recognitions

- International Adsorption Society Award for Excellence in the PhD Dissertation, USA, 2013
- Best Paper Award at Fundamentals of Adsorption Conference (FOA11), USA, 2013