



**Designing Porous Materials for Advancement of
Complex Gas Separation Processes**

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Dupuis Hall, Room 217

Can one material have multiple uses? Materials engineering involves the screening, characterization, and synthesis of new and robust multifunctional materials. In this work, small modifications to a material result in large differences in performance which then may be incorporated into new or improved processes or applications.

Adsorbent materials and ceramics can be readily modified and have multiple applications including in the automobile/aerospace industries (catalyst supports, particulate filters), enhanced energy storage/production, personal protective equipment/safety (gas mask canisters, HVAC filters), and can be tuned to meet the environmental challenges of the future. Material development and process integration as applied to porous adsorbent materials and ceramics will be discussed including: general processing strategies, material modifications and tuning, and performance metrics.