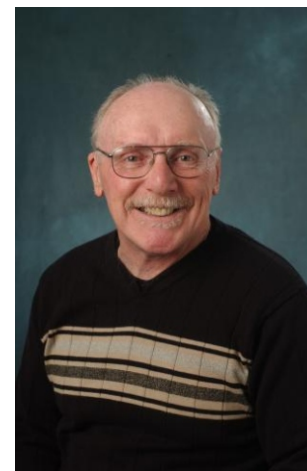


Novel Membranes for Improved Separations

Membranes perform chemical separations generally based on their morphology. The keys to designing porous membrane materials for chemical separations are the ability to generate uniform pores with the correct size on the molecular level and that are continuous across the membrane. Because of the benefits of membrane-based chemical separations over other methods, there has been recent interest in applying membranes to new separation problems. Consequently, there is a need for better membrane materials in general (i.e., with better selectivity, better productivity, longer life and operational stability, increased operating temperature range, use in chemically challenging environments, and the ability to adjust materials properties and performance for a given application).

Nové membrány pro zlepšené separace

Membrány dělí chemické látky různými mechanismy podle své morfologie. Klíčem k vytváření porézních membránových materiálů pro chemické separace je schopnost vytvářet jednotné póry se správnou velikostí na molekulární úrovni, a to kontinuálně v celé membráně. Vzhledem k tomu, že se čím dál tím výrazněji projevují výhody membránových separačních procesů oproti jiným metodám, vzrostl v poslední době zájem o používání membrán u nových separačních problémů. Následkem toho se hledají především membránové materiály s lepší selektivitou a produktivitou, delší životností, provozní stabilitou, větším teplotním rozsahem, použitím v chemicky náročném prostředí, a se schopností přizpůsobit materiálové vlastnosti a výkonnost dané aplikaci.



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He has received thirteen teaching awards and has thirty five research publications with undergraduate students as authors. His four service awards include the AIChE Service to Society award (2005) and sixteen research awards including CU Inventor of the Year (2008), Chair d'Excellence Pierre de Fermat, Paul Sabatier University, Toulouse, France (2010), AIChE Institute Excellence in Industrial Gas Technology award (2010) and ACS National Award for Separation Science and Technology (2015). He has been chair of the AIChE Separations Division, ACS Separations Science and Technology subdivision, as well as the Gordon Research Conferences on Separation and Purification, and Membranes: Materials & Processes.