

# Actuatable Membranes Based on Polypyrrole-Coated Vertically Aligned Carbon Nanofibers

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- The fabrication and characterization of synthetic, actuatable membranes has been achieved.
- Application of a bias to an integrated CNF electrode leads to swelling of a pPy coating and reduced permeability of the membrane.
- Altered transport of fluorescent species was demonstrated by actuation of the nanoscale pores.
- Carbon nanofiber, actuatable polymer hybrid membranes represent the first steps toward the creation of dynamic membrane structures, capable of reversibly controlling transport on the molecular scale.

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