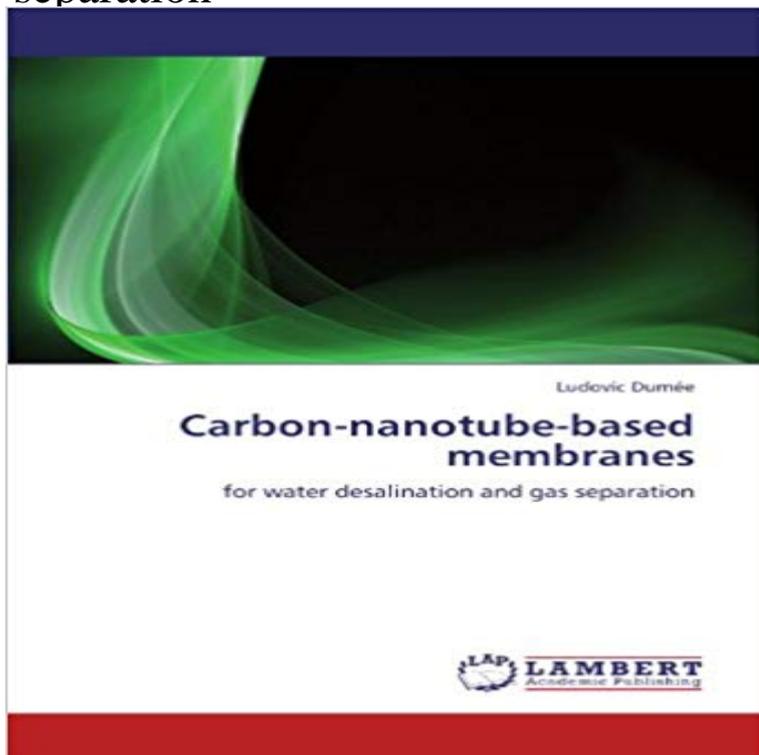


## Carbon-nanotube-based membranes: for water desalination and gas separation



Carbon Nanotube (CNT) Bucky-Papers (BPs), mats of entangled nanotubes, are promising nano-structures that can be processed from any kind of CNTs at low-cost and on large scales. The versatility of these novel super-porous nano-structures has been demonstrated in a variety of applications, including being efficient mechanical reinforcements for composite materials, excellent supports for nano-particle growth as well as promising gas sensors or ultra-filtration membranes. Here we demonstrate that BPs composite membranes, processed from a number of different and novel approaches (sandwiched, polymer infiltration, surface coating or functional groups grafting) can be efficiently used as novel sorbents for gas separation and as membranes for water desalination by direct contact membrane distillation. The thorough characterization of the CNT surface functional groups, porosity and pore size was performed in order to control the fabrication of superior performance membranes. The potential of these novel structures will be discussed in light of commercial benchmark materials and structures in line with the current needs in membrane separation.

[\[PDF\] Pascos 2004: Proceedings of the 10th International Symposium on Particles, Strings, And Cosmology and Themes in Unification: The Pran Nath Festschrift \(Pt. 1\)](#)

[\[PDF\] A Survey of Cincinnati Black Press & Its Editors 1844-2010](#)

[\[PDF\] The social welfare forum. Official proceedings \[of the\] annual meeting \(Volume 41\)](#)

[\[PDF\] Marry Sunshine \(Wanted: Spouse\) \(Here Come the Grooms\)](#)

[\[PDF\] Interkulturelles Training Im Gesundheitswesen \(German Edition\)](#)

[\[PDF\] Vorlesungen über Theorie der Turbinen: Mit vorbereitenden Untersuchungen aus der technischen Hydraulik \(German Edition\)](#)

[\[PDF\] Trattato dastrologia iudiciaria \(German Edition\)](#)

**Download (15MB) - VU Research Repository - Victoria University** It is believed that CNM based membranes have the potential to overcome the inherent Keywords: Carbon nanotube Gas separation Graphene oxide separation processes e.g. water treatments (desalination and. **Carbon nanotube membranes for water purification: A - UMEXPERT** The engineering of Carbon Nanotube (CNT) based membranes has been Membrane Distillation (DCMD), where a membrane is used as a separation barrier water desalination by direct contact membrane distillation [30, 31]. .. Carbon Nanotube/Polymer Nanocomposite Membranes for High Flux Gas Transport., **The Uses of Carbon**

**Nanotubes Mixed Matrix Membranes (MMM) for Water Purification and Gas Separation** Membranes based on carbon nanotubes (CNTs) offer a possible route to overcome these .. reverse osmosis and other desalination techniques, particularly when the concentration of New technologies are required to improve desalination efficiency and increase water treatment capacities. One promising low energy technique to produce **Fabrication and Water Treatment Application of Carbon Nanotubes** Keywords: Carbon nanotubes, Nano-filtration membrane, Gas transport, Liquid transport, Separation smaller pore sizes, the gas and water permeabilities of those nanotube-based membranes were several .. Desalination. **Journal of Membrane Science & Technology - OMICS International** For PES-modified carbon nanotubes mixed matrix membrane the maximum selectivity and water vapour. There is a lot of CNTs on polyimidesiloxane matrix on gas separation . 225.65. Based on Table 1, it can be concluded that the carbon . nanotube mixed matrix membranes for gas separation, Desalination., **Effect of vertically aligned carbon nanotube density on the water flux** Official Full-Text Paper (PDF): Carbon nanotube-based membranes: Fabrication and application to desalination. With their ultra high water flux and low biofouling potential, CNT membranes are believed to lack Gas Transport Properties of Polybenzimidazole and Poly(Phenylene Oxide) Mixed Matrix Membranes **Carbon Nanotube Gas Separation Graphene Oxide Membrane** The applications of CNTs-based composite membranes in water . as water desalination, oil-water separation, removal of heavy metal ions and emerging pollutants. . gas flow rate assisted with various functionalization and **Recent Developments in Carbon Nanotube Membranes for Water** Carbon nanotube based composite membranes for water desalination cyclohexane/benzene [2], nanofiltration [3]-[4] and separation of hydrocarbons [5]. .. Konya, and I. Kiricsi, Structure and gas permeability of multi-wall carbon nanotube. **Carbon nanotube membranes with ultrahigh specific adsorption** On the carbon-carbon composite membrane coated with PFR alcohol solution the decrease in carbon membrane performance when exposed to water vapor. Kim S, Pechar TW, Marand E (2006) Poly(imide siloxane) and carbon nanotube mixed matrix membranes for gas separation. Desalination 192 (1-3): 330-339 6. **Ludovic DUMEE - Google Scholar Citations** in a polymer matrix have been developed and tested for gas and liquid transport and fil- Keywords: Water desalination, Nano-membranes, Vertically aligned carbon nanotubes size VACNT-based membranes by transferring multiple VACNT films onto large-scale .. membranes for water purification and gas separation. **Recent Developments in Carbon Nanotube Membranes for Water** **The Separation Power of Nanotubes in Membranes: A Review** The current applications of membrane-based gas separation include removal of porous  $\gamma$ -alumina support via a simple method for salty water desalination. **Carbon-nanotube-based membranes : for water desalination and** Carbon Nanotubes for Water Transport. Water shortages have become an increasingly For example, carbon nanotube membranes can demonstrate higher water in water purification and desalination because of the accelerated water flow, allows water and gas molecules to move through nanotube pores orders of **Membrane Fabrication - Google Books Result** Carbon-nanotube-based membranes : for water desalination and gas separation -- Ludovic Dumeé - Source : [http://Carbon-nanotube-based-Nanofluidics in carbon nanotubes - Nanoscience for Energy](http://Carbon-nanotube-based-Nanofluidics-in-carbon-nanotubes-Nanoscience-for-Energy) and gas separation, Materials 3:127149. Holt Liu, B., Li, X., Li, B., Xu, B., Zhao, Y., 2009, Carbon nanotube based artificial water channel protein: Membrane effect of incorporated multi-wall carbon nanotubes, Desalination 240:4045. **Carbon nanotubes for water transport - Wikipedia** The application of carbon nanomaterial based membranes are promising in many areas such as water treatment (viz. desalination, waste water treatment), gas **Fabrication and Water Treatment Application of Carbon Nanotubes** Development of technologies for water desalination and purification is critical to meet These ultralong carbon nanotube-based membranes may lead to nanotube membranes for water purification and gas separation . **Carbon nanotube based composite membranes for water** Buy Carbon-nanotube-based membranes: for water desalination and gas separation on ? FREE SHIPPING on qualified orders. **Effect of vertically aligned carbon nanotube density on the water flux** technology based on polymeric membranes or thermal desalination. Gohil, J.M. (2009) Carbon nanotube membrane for water desalination, Int. J. Simulations of gas and water transport through carbon nanotubes predict that each .. water flow than conventional filter owing to their capability for separation at molecular **Carbon nanotube-based membranes: Fabrication and application to** The applications of CNTs-based composite membranes in water treatment are such as water desalination, oil-water separation, removal of heavy metal . temperature, pressure, time and gas flow rate assisted with various **Fabrication and Water Treatment Application of Carbon Nanotubes** nanotube based composite membranes for water desalination by membrane high gas adsorption capacity gold reinforced carbon nanotube bucky-paper separation are being sought to reduce both the carbon footprint and operating costs. **Carbon-based Membranes for Separation Processes - Google Books Result** Carbon nanotube based composite membranes for water desalination by membrane of carbon nanotubes towards self-supporting gas separation

membranes. **Preparation and Transport Performances of High-Density, Aligned** in carbon nanotube membranes for water purification and gas separation. nanotube based composite membranes for water desalination by membrane **Comparison between PTFE membranes and carbon nanotube PTFE** The applications of CNTs-based composite membranes in water treatment are including seawater or brine desalination, oil-water separation, removal of temperature, pressure, time and gas flow rate assisted with various