Editorial

Polymeric Membrane Science and Technology

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Membrane technology is becoming increasingly important due to high efficiency, low cost, and easy manipulation, and membranes are widely used in diverse fields including substance separation and purification, environment protection and remedy, and energy conversion and storage [1, 2]. Basic membrane research includes a number of scopes, including membrane surface modification [3] and its relation to membrane characterizations, membrane formation and structure on transport properties [4], theoretical analyses of membrane transport phenomena, experimental results on membrane permeation and selectivity, membrane fouling and its effect on membrane performance, membrane adsorber/membrane chromatography, membrane modules and their impact on device performance, and membrane processes/applications with a focus on the role of the membrane. In this special issue, we focus on the membrane formation and membrane surface modification and applications.

In “*the solubility of hydrocarbon gases in glassy polymers: fractal modeling*,” a fractal model was proposed to estimate the permeability and selectivity in gas transport through polymeric membranes; it was found that this model is very useful and it is found that the values of the solubility coefficient depend on the size of the gas penetrant molecules, their molecular interactions with the polymer, and the fractal dimensions of the polymer. The organic-inorganic hybrid membranes, including ZSM-5 filled polyether block amide membranes (PEBA) in “*ZSM-5 filled polyether block amide membranes for separating EA from aqueous solution by pervaporation*” vinyltriethoxysilane cross-linked polyacrylonitrile membrane and nano ZnO deposited polypropylene

macroporous membrane in “*Decoloring methyl orange under sunlight by a photocatalytic membrane reactor based on ZnO nanoparticles and polypropylene macroporous membrane*,” can improve the desired properties of the membranes; the modified membranes possess both the advantages of the original membrane and the inorganic particles. The composite sponge of chitosan and gelatin at different proportions was prepared and the wound healing effect was evaluated; water uptake ability, antibacterial activity, and wound closure were enhanced at some extent in “*Curcumin-loaded chitosan/gelatin composite sponge for wound healing application*.”

Last but not least, a careful modulation of polyurethane-keratin membrane structure by isocyanate and pH was performed and the removal of Cr(VI) from aqueous solution was performed; the results showed that the removal efficiency was significantly increased at low pH in “*Polyurethane-keratin membranes: structural changes by isocyanate and pH, and the repercussion on Cr(VI) removal*.”

We hope that readers will find in this special issue not only accurate data but also important questions to be resolved such as preparation of hybrid membranes for decoloring organic dyes, effects of dye and nanoparticles loadings, and damages on the membranes due to long-time irradiation.

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