Effect of ion crosslinking for graphene nanoribbon membrane ion permeance

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Water shortage is one of the major problem that human race faces. membrane base reverse osmosis and nano filtration technology is one of the solution that can produce water in a low cost. To overcome the permeance of the polymer, many materials like zeolite, graphene oxide and mxene are being studied. Graphene oxide nano ribbon (GNR) is 1 dimensional material that made by unzipping multi wall carbon nano tube. Stacked GNR has porous surface with abundant functional group. In this work we fabricated ion cross linked GNR membrane to get tight interlayer distance and prevent swelling. The ion cross linking successfully hold GNR flakes to and reduced the distance of the flakes. Well packed GNR ion cross linked membrane dramatic increase in the ion rejection effects of the functional groups comparing with the bare GNR membrane.