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(54) Title: FUNCTIONALIZATION OF GRAPHENE HOLES FOR DEIONIZATION

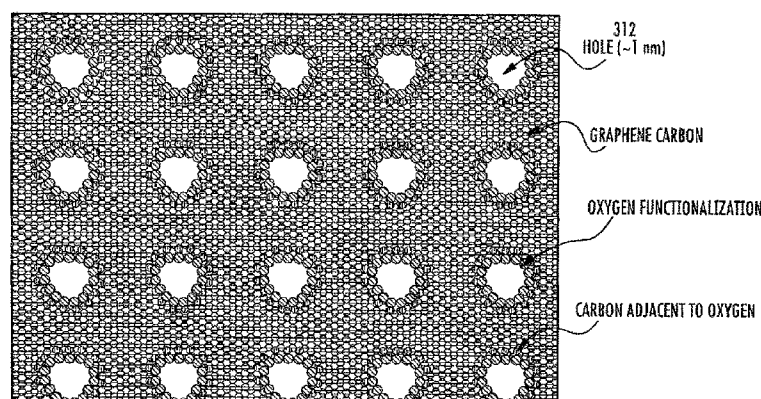


FIG. 4

(57) Abstract: A method for deionization of a solution, the method comprising functionalizing plural apertures of a graphene sheet to repel first ions in the solution from transiting through the functionalized plural apertures. The non-transiting first ions influence second ions in the solution to not transit through the functionalized plural apertures. The graphene sheet is positioned between a solution flow path input and a solution flow path output. Solution enters the solution flow path input and through the functionalized plural apertures of the graphene sheet, resulting in a deionized solution on the solution flow path output side of the graphene sheet and a second solution containing the first ions and second ions on the solution flow path input side of the graphene sheet.

