

## **Porous Carbon with Applied Electric Potential for Water Desalination**

### **Disclosure Number**

201403228

### **Technology Summary**

We report a carbon-based, three-dimensional nanofluidic transport membrane that enables gated, or on/off, control of the transport of organic molecular species and metal ions using an applied electrical potential. In the absence of an applied potential, both cationic and anionic molecules freely diffuse across the carbon membrane via a concentration gradient. When an electric potential is applied to the carbon membrane, the transport of ions through the membrane is prevented thus providing selective removal of ions such as salt from water. This has potential applications in desalination, ion removal and drug delivery.

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