

Abstract Submitted  
for the DFD16 Meeting of  
The American Physical Society

**A new desalination technique using capacitive deionization** MOHAMMAD SAJJAD ROSTAMY, MORTEZA KHASHECHI, EHSAN PIPELZADEH, None, DESALINATION TEAM — Capacitive deionization (CDI) is an emerging energy efficient, low pressure and low capital intensive desalination process where ions are separated by a pure electrostatic force imposed by a small bias potential as low as 1 V That funded by an external Renewable (Solar) power supply to materials with high specific surface area. The main objective of this configuration is to separate the cation and anions on oppositely charged electrodes. Various electrode materials have been developed in the past, which have suffered from instability and lack of performance. Preliminary experimental results using carbon black, graphite powder, graphene\graphite\PTFE (Active\Conductive\binder), show that the graphene reduced via urea method is a suitable method to develop CDI electrode materials with capacitance as high as 52.2 mg/g for free standing graphene electrode. The focus of these studies has been mainly on developing electrodes with high specific surface area, high capacitance, excellent electronic conductivity and fast charge discharge cycles for desalination. Although some progress has been made, production of efficient and stable carbon based electrode materials for large scale desalination has not been fully realized.

Mohammad Sajjad Rostamy  
None

Date submitted: 02 Aug 2016

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