

Modeling the Physics of Polymer Fuel Cell Membranes

With climate change rampant and oil running out, we have to rethink the way we obtain and use energy. If drilling in the Arctic National Wildlife Refuge fails to discover the expected abundant supplies of hydrogen, we may be forced into the realization that developing renewable sources, and using existing sources with greater efficiency, are ideas that are not entirely bad. In both of these cases, fuel cells have a central role to play. They avoid the exorbitant tax that Monsieur Sadi Carnot imposes on those who choose to burn their fuels. They also are an important component of the scenario that involves the storage of energy as hydrogen produced by electrolysis of water from intermittent sources. In this talk I will, after a short rant on the subject of energy in general, discuss some attempts to understand how one component of a typical fuel cell does its work.

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