

عنوان مقاله:

Synthesis of composite proton exchange membrane made of the sulfonated metal-organic framework and sulfonated polymer

محل انتشار:

اولین همایش بین المللی علوم و فناوری نانو (سال: 1399)

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خلاصه مقاله:

In this study, octahedral crystal MIL100(Fe) is synthesized via hydrothermal reaction. It is then functionalized with sulfonic acid groups using chlorosulfonic acid in 1,2-dichloroethane at 25°C. The sulfonated MIL100(Fe) is homogenously incorporated into the sulfonated polysulfone (SPSU) matrix to prepare hybrid membranes. The performance of the hybrid membrane is evaluated by proton conductivity. The proton conductivity of the hybrid membrane increased to 3.82 mS cm⁻¹ at room temperature and 100% RH, which is 75% higher than that of the pristine membrane. The increment of proton conductivity is attributed to providing sulfonic acid groups, forming additional proton -transport pathways at the interfaces of polymer and MOF, and constructing hydrogen-bonded .networks for proton conduction

کلمات کلیدی:

Proton exchange membrane; Nanocomposite; MOF; SPSU

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