

## Preparation and characterization of electro-catalysts supported on mesoporous carbons for polymer electrolyte fuel cells

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Support materials which have various pore sizes were applied to the electro-catalyst of polymer electrolyte fuel cell (PEFC). The surface area and pore volume, pore size, and so on can affect on the morphological characteristics of active metals. As a result, the performance can be changed caused by the alternation of reactant mobility as well as electro-chemical reactivity.

There have been several research activities on the preparation of porous carbons using imprinting method. However, it's difficult to find reports which deal the design aspect considering the structure of electrodes in PEFCs.

In the present work, an imprinting method was used to synthesize mesoporous carbons. The bimodal characteristics could be achieved by adopting SBA-15 and silica colloids at the same time to the mesophase pitch (diameter = 4  $\mu\text{m}$ ). The noble active metals were loaded on the prepared mesoporous carbons. The resulting mesoporous carbons and the electro-catalysts were characterized to compare the differences between conventional and home-made electro-catalysts by TEM, SEM, XRD, BET, Cyclic voltametry, and so on.