



“固体所青联会”第七十期

# 学术论坛

**题目：** The Organic Acids Assisted Sol-Gel Method for Preparing Functional Aerogels

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**时间：** 2018年10月12日 (周五) 下午 14: 30

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**主办单位：** 中科院固体物理研究所青年联合会

中科院青年创新促进会合肥物质科学研究院小组

**报告摘要：** Here I am presenting a new class of gelators based on the low cost organic acids and the corresponding functional aerogels prepared from such gelators. A series of organic acids were adopted to initiate the sol to gel transition in the solution phase. After supercritical drying, metal oxide, metal sulfide and metal phosphate aerogels can be obtained with the characteristics similar to those of the conventional metal oxide aerogels prepared by epoxide adding method. The composition of the final aerogel can be readily tuned by the side chains of organic acids. The detail gelation mechanism was analyzed by using several different organic acids containing identical main chain but different side groups. The complex interactions including covalent bond and coordination bond interactions between organic acids and metal ions are vital to give rigid gel network. Further modification included tuning the mesoporous structure, compositing them with conductive graphene and carbon nanotubes, and loading with noble metal nanoparticles (Pt, Au etc). The results demonstrated that these functional aerogels are good candidates for energy storage, electrochemical H<sub>2</sub> and O<sub>2</sub> evolution and thermal insulation applications.

**报告人简介：** 支明佳博士在浙江大学获得学士和硕士学位，在美国西弗吉尼亚大学获得博士学位，后在美国能源部国家能源技术实验室开展博士后研究工作，现任浙江大学材料科学与工程学院副教授。支明佳博士近期的研究兴趣主要集中在耐高温轻质隔热材料及功能气凝胶材料等领域，至今已发表论文50余篇，总引用4500余次。

