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Highly coke resistant Ni-based catalyst prepared via a novel magnesiothermic reduction for methane reforming catalysis with CO₂

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It is known that addition of alkaline promoters can help to improve the coking resistance of the metal/support composite catalysts for methane reforming with CO₂ (dry reforming of methane, DRM). The metal/promoter/support composites for DRM catalysis are conventionally obtained from alkaline species impregnation and then high temperature H₂ reduction. This two-step process usually leads to a random distribution of metal-promoter interaction. We herein report a novel magnesiothermic method to reduce Ni from oxide precursor and introduce alkaline Mg(II) into the composite at the same time, which also gratifies the interaction between the promoter and metal nanoparticles (NPs). The as prepared catalysts show good activity and outstanding coking resistance in DRM.

Biography

Jing LIU is currently a lecturer of Materials Science and Engineering, Shanghai Jiao Tong University. She received her B.S. (Materials Science and Engineering) from Tongji University and her MSC degree (Materials Science) from Loughborough University, UK. In 2012, she obtained her PhD degree followed with a postdoctoral position at from Loughborough University. Her research interests focus on catalysis, nano ceramics and metal-ceramic interpenetrating composites.

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