

Noncovalent functionalization of few-layer black phosphorus with metal nanoparticles and its application in catalysis

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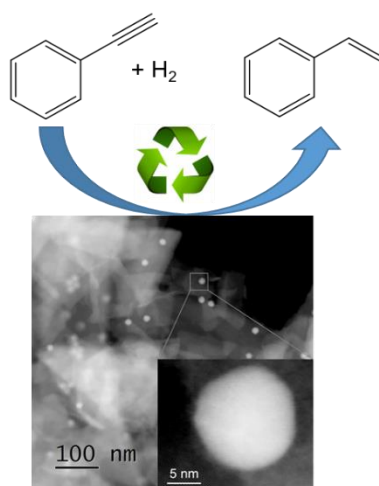
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Transition metal nanoparticles of Ni, Pd, Ru and Au, each of them stabilized by a suitable capping agent, were dispersed on the surface of few-layer black phosphorus (2D BP) achieving new nanocomposite 2D materials. Ni nanoparticles supported on 2D BP worked successfully in the hydrogenation of phenylacetylene, showing good catalytic activity preserved after recycling tests. This result highlights that 2D BP is able to stabilize metal nanoparticles through weak noncovalent interactions and discloses a wide application of 2D BP as a hosting platform for catalytically active metal species.



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