Recyclable Metal (Atom or Clusters) Catalysts Supported by Carbon Nanosheets

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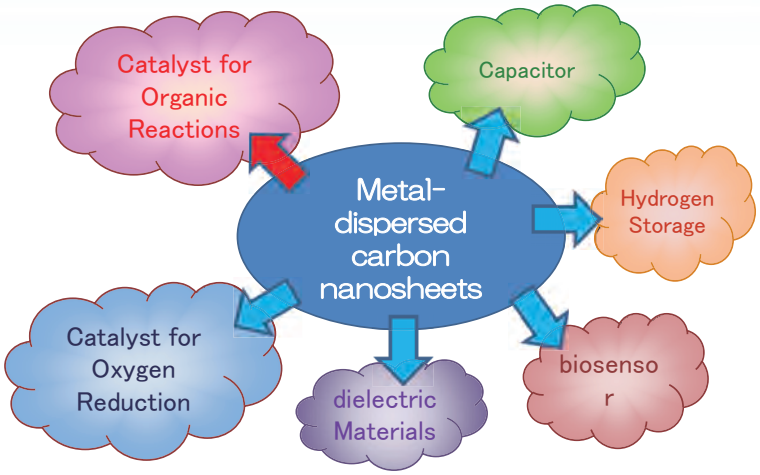
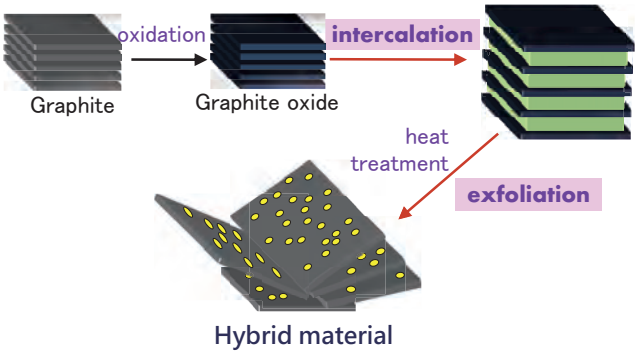


Scheme of producing carbon nanosheets including metal nanoparticles, clusters, and isolated atoms



【Characteristics】

- **Several catalytically active metals can be arbitrarily dispersed on carbon nanosheets as nanoparticles, nanoclusters, and isolated atoms.**
- **Customizability of metal characteristics for the use.**
- **Easy to separate from the reaction mixture. Recyclable for several times.**

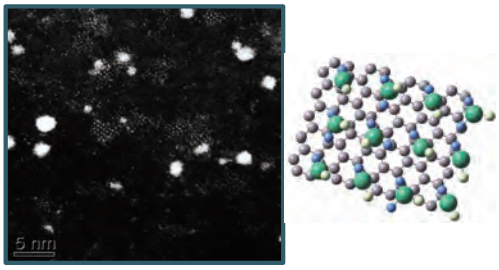


Fig. 1 Regularly-arranged Isolated Rh atoms and nanoparticles on graphene sheets

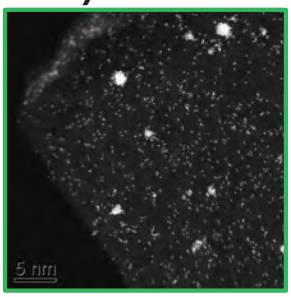


Fig. 2 Isolated Pt atoms and clusters

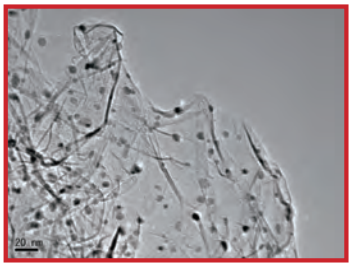
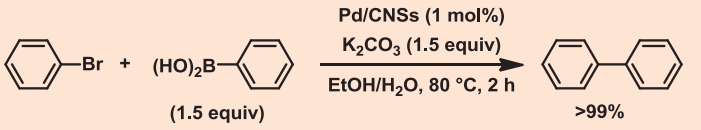
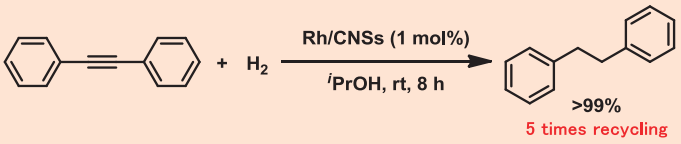


Fig. 3 Highly durable Pd nanoparticles

【Catalytic reactions and Mechanisms】





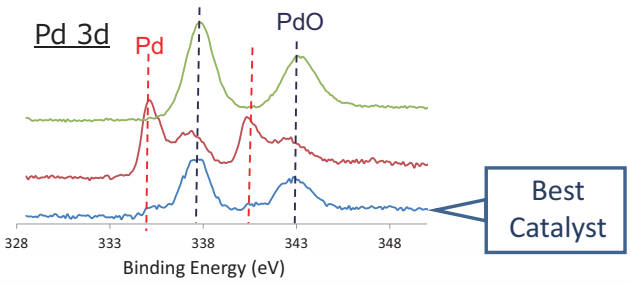
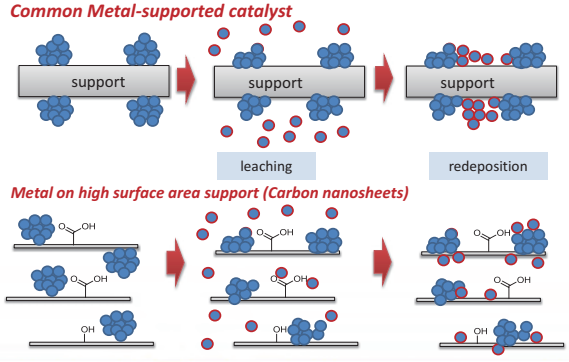


Fig.4 XPS spectra of Pd, PdO, and Pd-carbon nanosheets



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