

Supporting Information

Surfactant Free RGO/Pd Nanocomposites As Highly Active Heterogeneous Catalyst for the Dehydrogenation of Ammonia Borane for Chemical Hydrogen Release

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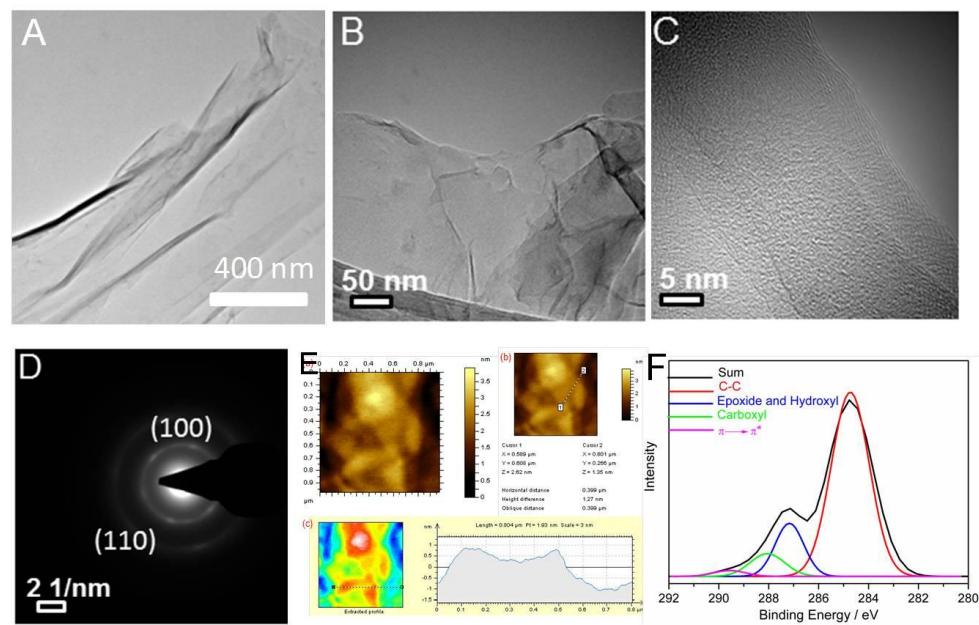


Figure S1. (A, B) TEM image GO nanosheets. (C) High-resolution TEM iamge of GO. (D) (E) AFM images and cross-section analysis of GO, (F) XPS spectrum of graphene oxide (GO)

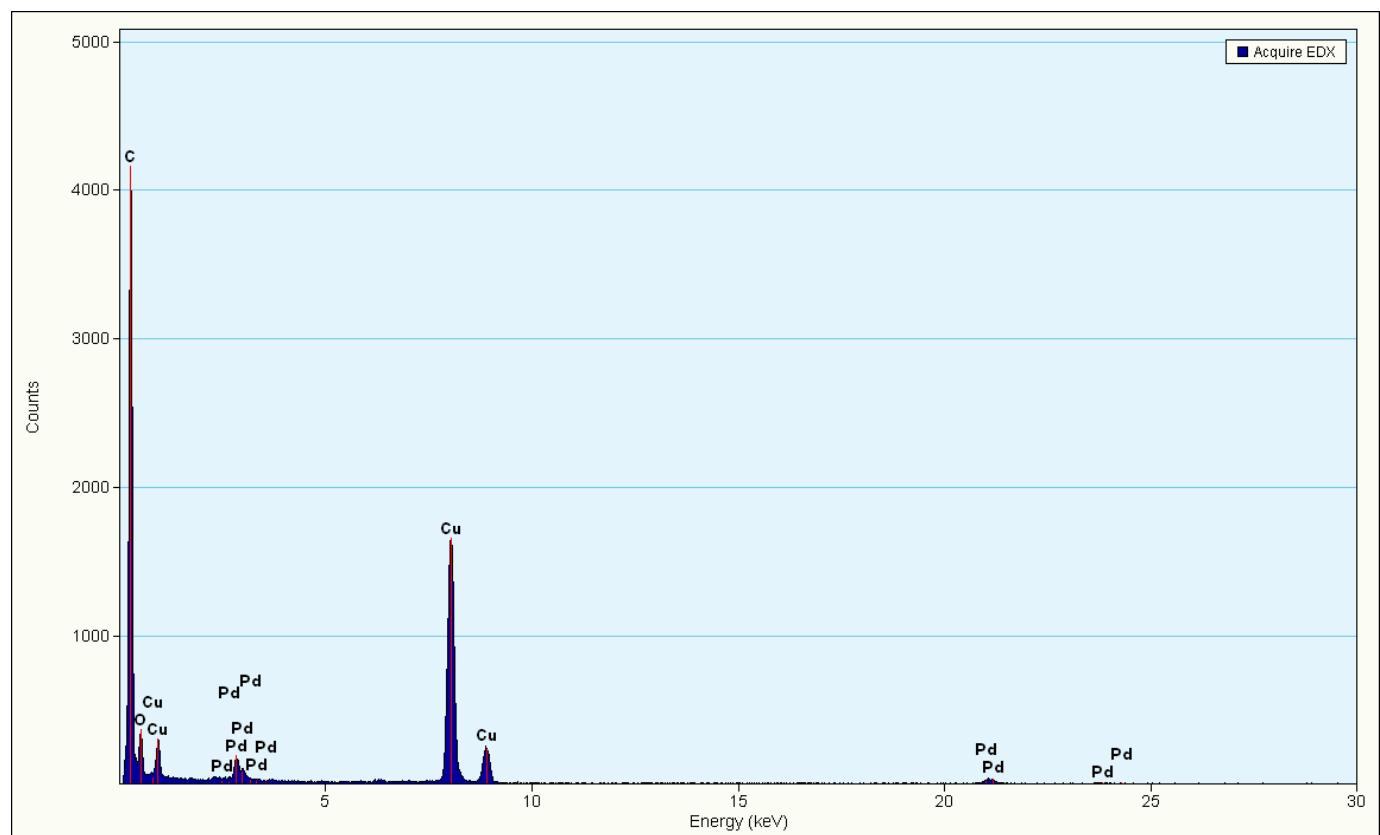


Figure S2. EDX of RGO/Pd hybrid nanocomposites.

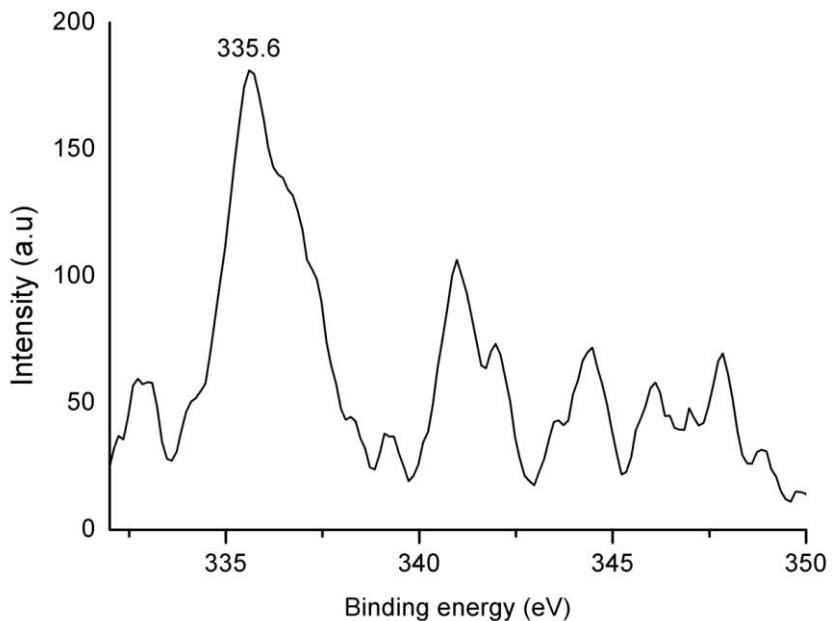


Figure S3 XPS spectrum of Pd

Table S1. Hydrogen generation from aqueous ammonia borane catalyzed by RGO/Pd based catalysts.

| Catalyst | Metal/AB ratio(mol/mol) | Maximum H ₂ /AB ratio(mol/mol) | Time for reaction completion (min) | TOF mol H ₂ · mol catalyst ⁻¹ · min ⁻¹ | Ref. |
|--|-------------------------|---|------------------------------------|---|-------------------|
| 2wt%Pd/ γ -Al ₂ O ₃ | 0.018 | 3.0 | 120 | 1.4 | [1] |
| Pd black | 0.018 | 3.0 | 250 | 0.7 | [1] |
| zeolite confined Pd nanocluster | 0.015 | 3.0 | 50 | 4.0 | [2] |
| PSSA-co-MA stabilized Pd | 0.05 | 3.0 | 12 | 5.0 | [3] |
| RGO/Pd | 0.04 | 3.0 | 12.5 | 6.25 | This study |
| Pd/C | 0.018 | 3.0 | 250 | 2.0 | [4] |
| 2wt%Pd/ γ -Al ₂ O ₃ | 0.018 | 3.0 | 120 | 1.6 | [5] |
| Co NPs | 0.04 | 3.0 | 1.7 | 0.12 | [6] |

References:

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