Palladium nanoparticles immobilized on halloysite nanotubes covered by multilayer network for catalytic applications

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**Figure S1.** Recycling tests of HNT/Pd catalyst in the Suzuki reaction.

**Figure S2.** Recycling tests of HNT/Pd catalyst in the Suzuki reaction.
Table S1. Heck reactions catalyzed by HNT@Pd catalyst in ethanol. a

**Reaction conditions:** aryliodide (0.5 mmol), alkene (0.75 mmol), TEA (1 mmol), EtOH (1 mL) and catalyst (0.1 mol%). b

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aReaction conditions: aryliodide (0.5 mmol), alkene (0.75 mmol), TEA (1 mmol), EtOH (1 mL) and catalyst (0.1 mol%). bDetermined by 1H-NMR.
$^1$H NMR spectra of pure known compounds of Heck and Suzuki reactions:
$^1$H-NMR (CDCl$_3$, 300 MHz)
$^1$H-NMR (CDCl$_3$, 300 MHz)