Supporting Information

Ligand Effect in Recycled CNT-Pd Heterogeneous Catalyst for Decarboxylative Coupling Reactions

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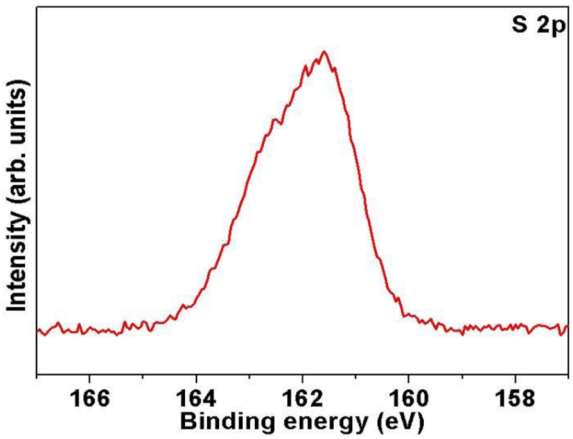


Figure S1. S 2p XPS spectrum of thiolated CNTs. An asymmetric peak is detected at 162 eV due to the S 2p photoelectron signal from the thiolate bond.[1,2]

1. Médard, C.; Morin, M. *J. Electroanal. Chem.* **2009**, *632*, 120.
2. Bach, L. G.; Islam, Md. R.; Kim, J. T.; Seo, S.; Lim, K. T. *Appl. Surf. Sci*. **2012**, *258*, 2959.

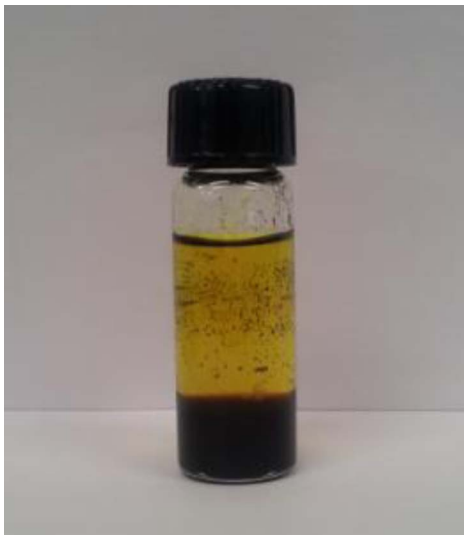
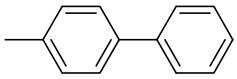


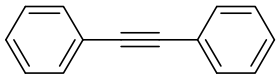
Figure S2. Phase separation *via* Et_2O addition in the reaction mixture.

4-Methylbiphenyl



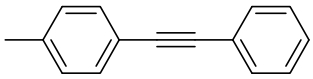
^{1}H NMR (300 MHz, $CDCl_3$) δ 7.56-7.51 (m, 2H), 7.47-7.42 (m, 2H), 7.39-7.34 (m, 2H), 7.31-7.23 (m, 1H), 7.21-7.15 (m, 2H), 2.33 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$) δ 214.1, 141.2, 138.4, 137.0, 129.6, 128.8, 127.1, 21.2.

1,2-diphenylethyne



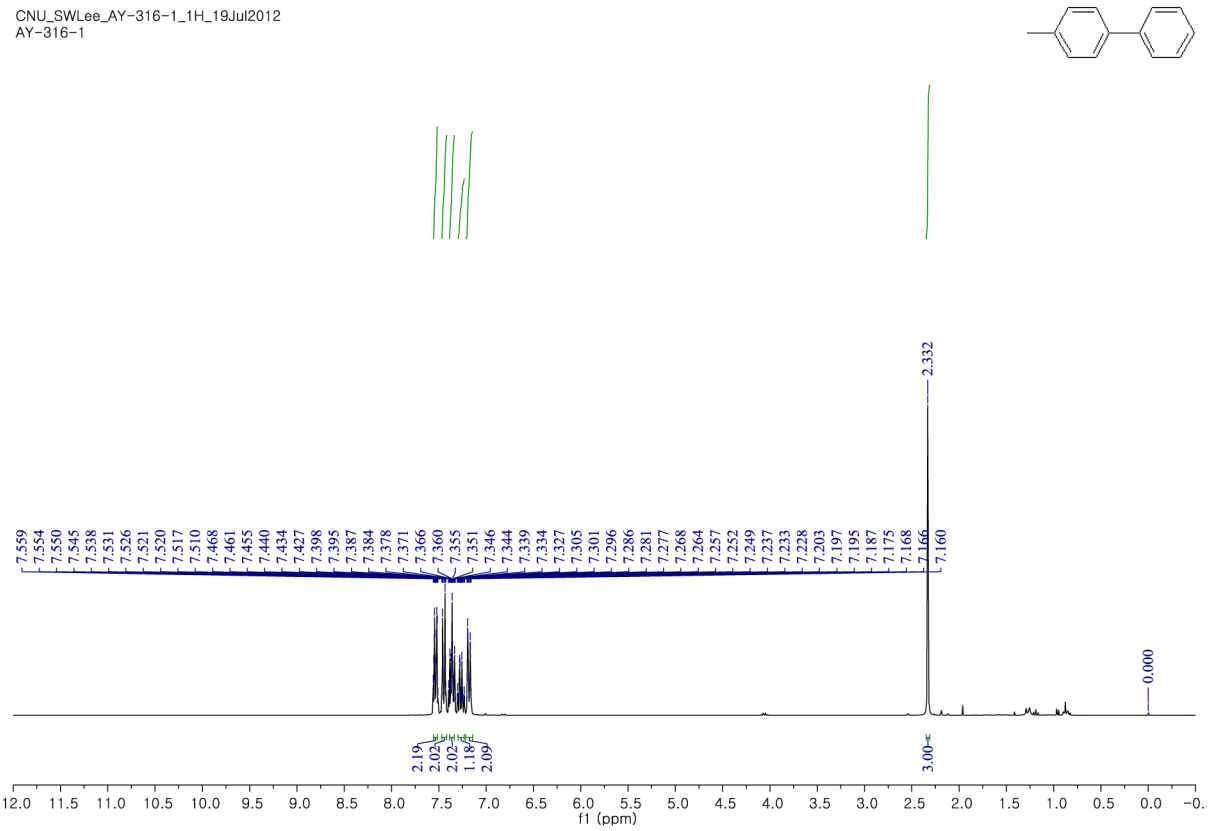
^{1}H NMR (300 MHz, $CDCl_3$) δ 7.57-7.47 (m, 4H), 7.37-7.27 (m, 6H). ^{13}C NMR (75 MHz, $CDCl_3$) δ 131.7, 128.5, 128.4, 123.4, 89.5.

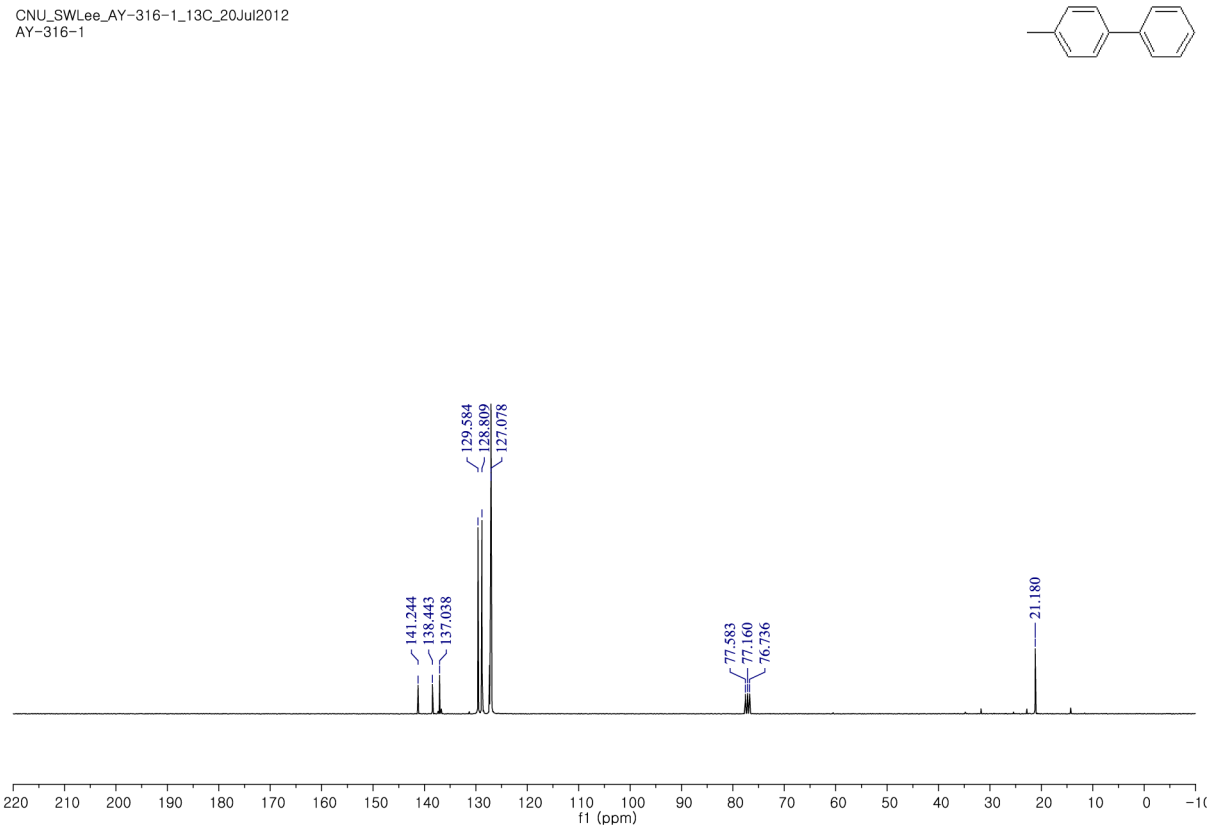
1-Methyl-4-(phenylethynyl)benzene



^{1}H NMR (300 MHz, $CDCl_3$) δ 7.55-7.48 (m, 2H), 7.44-7.39 (m, 2H), 7.35-7.26 (m, 3H), 7.15-7.09 (m, 2H), 2.33 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$) δ 138.5, 131.7, 131.6, 129.2, 128.4, 128.2, 123.6, 120.3, 89.7, 88.9, 21.6.

^{1}H NMR & ^{13}C NMR (4-Methylbiphenyl)





^{1}H NMR & ^{13}C NMR (1,2-diphenylethyne)

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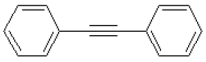
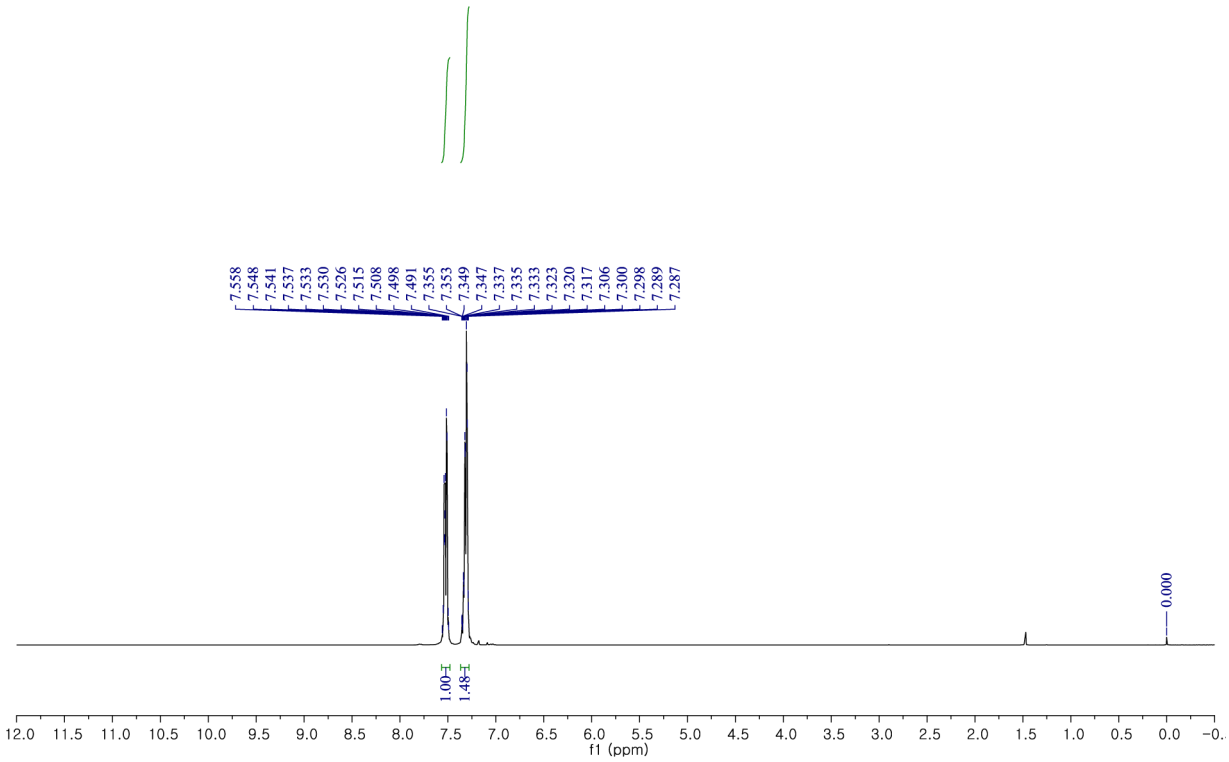
AY-DPA





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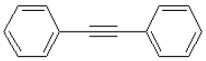
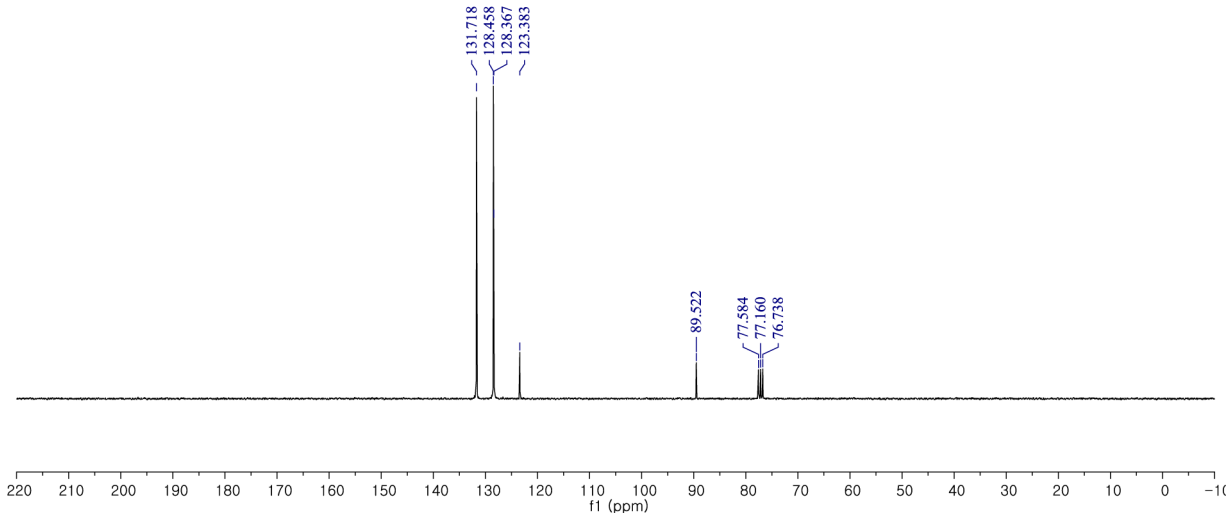
AY-DPA





^{1}H NMR & ^{13}C NMR (1-Methyl-4-(phenylethynyl)benzene)