# Supporting information

# Highly Efficient Catalytic Performances of Nitro Compounds and Morin via Self-Assembled MXene-Pd Nanocomposites Synthesized through Self-Reduction Strategy

**Juanjuan Yin [1,2], Lun Zhang [2], Tifeng Jiao [1,2,*], Guodong Zou [1], Zhenhua Bai [3], Yan Chen [2], Qingrui Zhang [2,*], Meirong Xia [2], Qiuming Peng [1]**

[1] State Key Laboratory of Metastable Materials Science and Technology, Yanshan University, Qinhuangdao 066004, China; jjy1729@163.com (J.Y.); zouguodong2015@stumail.ysu.edu.cn (G.Z.); pengqiuming@ysu.edu.cn (Q.P.)

[2] Hebei Key Laboratory of Applied Chemistry, School of Environmental and Chemical Engineering, Yanshan University, Qinhuangdao 066004, China; lawleit123@163.com (L.Z.); chenyan@ysu.edu.cn (Y.C.); xmr0125@126.com (M.X.);

[3] National Engineering Research Center for Equipment and Technology of Cold Strip Rolling, Yanshan University, 438 West Hebei Street, Qinhuangdao 066004, P. R. China; bai_zhenhua@aliyun.com (Z.B.)

* Correspondence: tfjiao@ysu.edu.cn (T.J.); zhangqr@ysu.edu.cn (Q.Z.); Tel.: +86-335-805-6854 (T.J.)

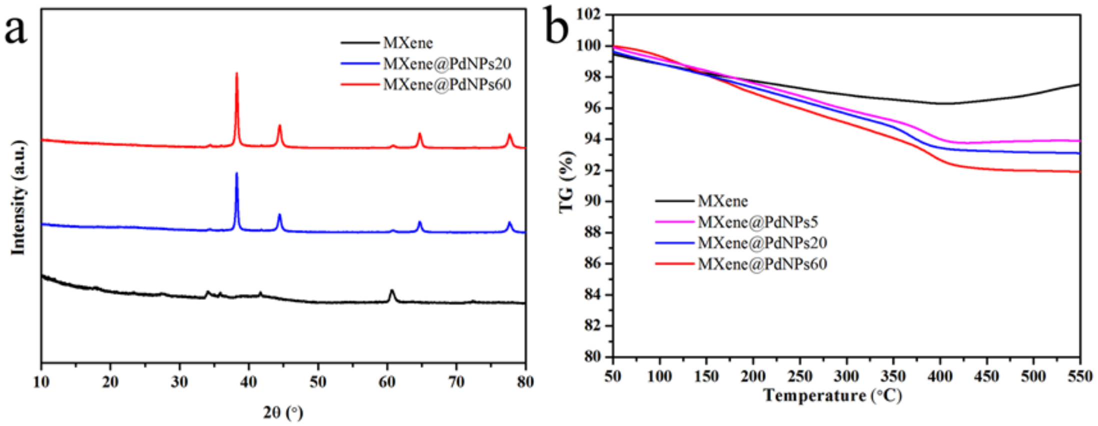

**Figure S1.** XRD patterns (a) and TG curves (b) of prepared MXene composites.

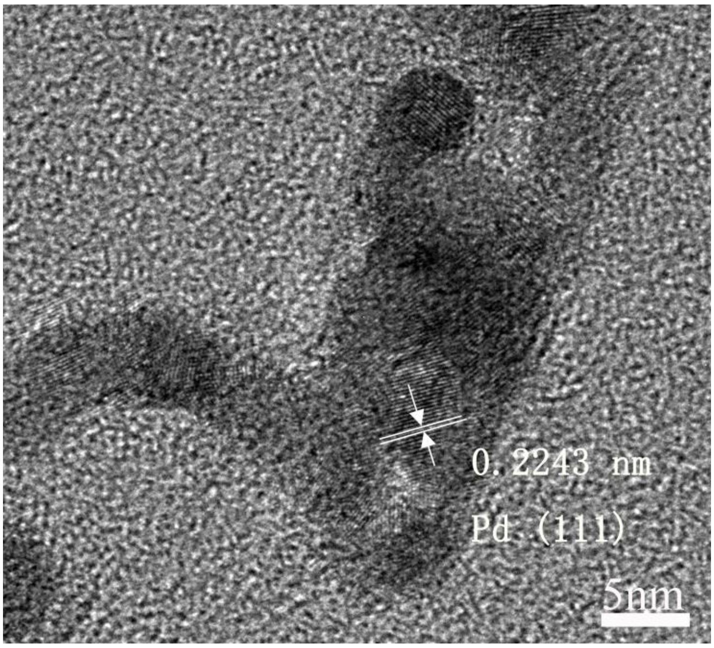

**Figure S2.** HRTEM image of the PdNPs catalyst.

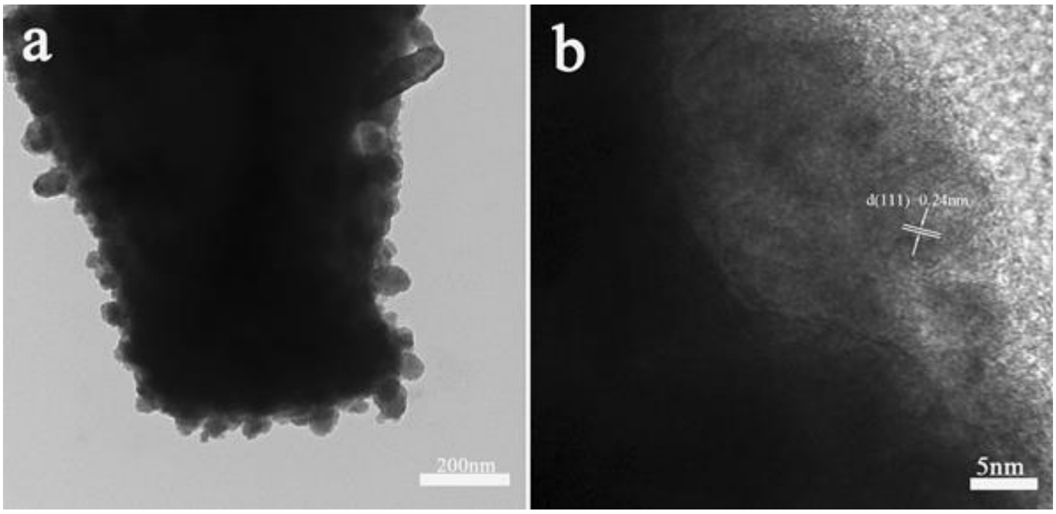

**Figure S3.** TEM image of the prepared MXene@PdNPs60 (a) and high-resolution TEM image of Pd nanoparticles (b).

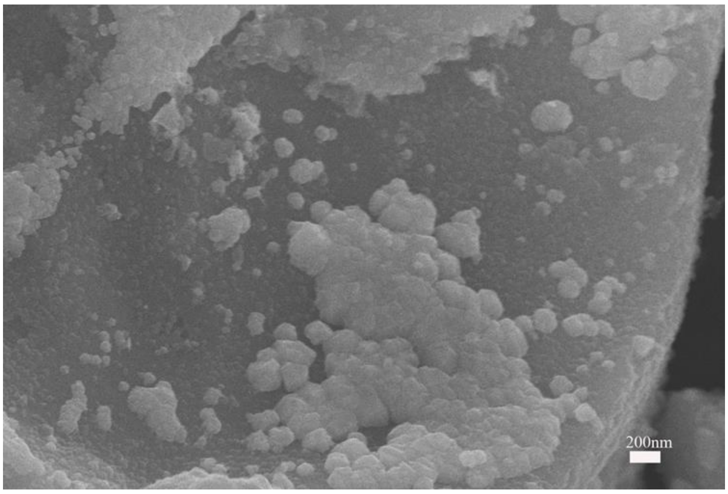

**Figure S4.** SEM image of layered MXene@PdNPs60.

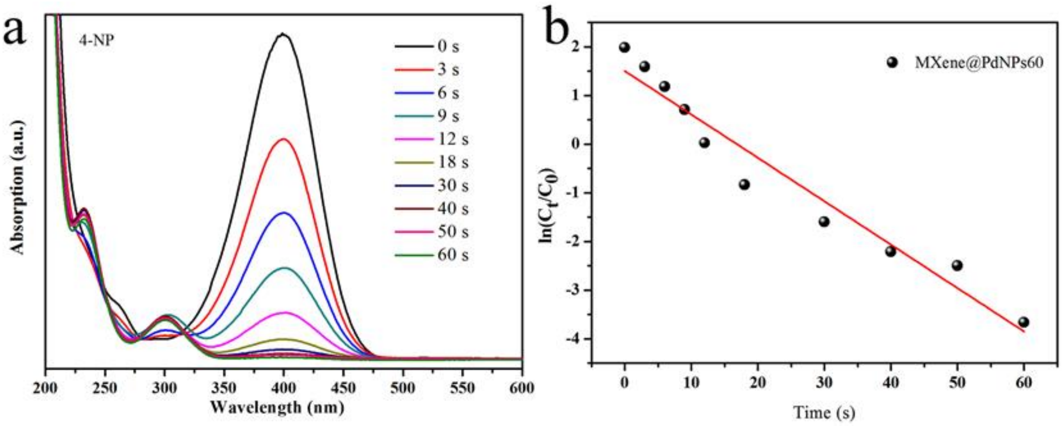

**Figure S5.** Catalytic reduction of 4-NP by MXene@PdNPs60 composite material (a) and (b) represent the corresponding relationship between the catalytic time and ln(Ct/C0).

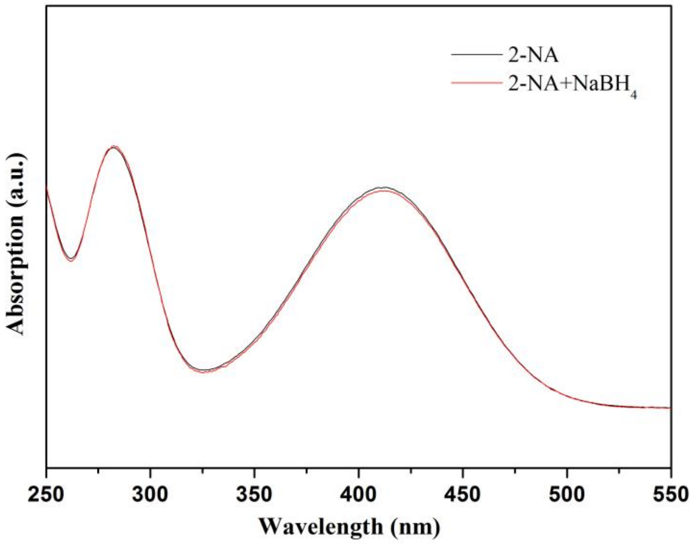

**Figure S6.** UV-vis absorption curves of 2-NA before and after adding $NaBH_4$ aqueous solution.

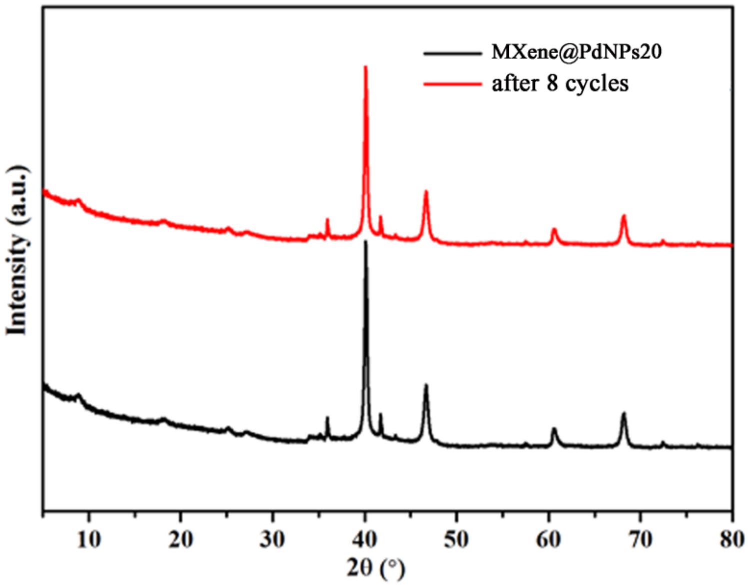

**Figure S7.** XRD patterns of prepared MXene@PdNPs20 before and after reduction of 4-NP with 8 cycles.