SUPPORTING INFORMATION

Exploiting the Photocatalytic Activity of Gold Nanoparticle-Functionalized Niobium Oxide Perovskites in Nitroarene Reductions

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[b]Département de Chimie du Québec à Montréal, 2101, rue Jeanne-Mance, Montréal, Québec, H2X 2J6, Canada.
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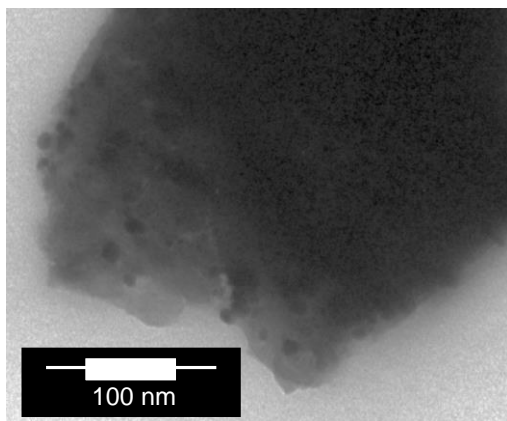
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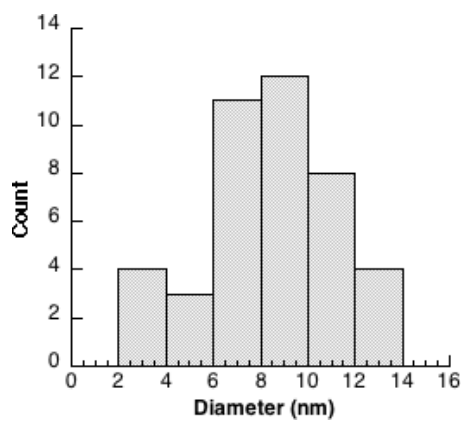**Figure S1.** TEM image of AuNP/NaNbO$_3$

Figure S2. Particle distribution of AuNP/KNbO$_3$. Average diameter: 8.5 ± 2.7nm.
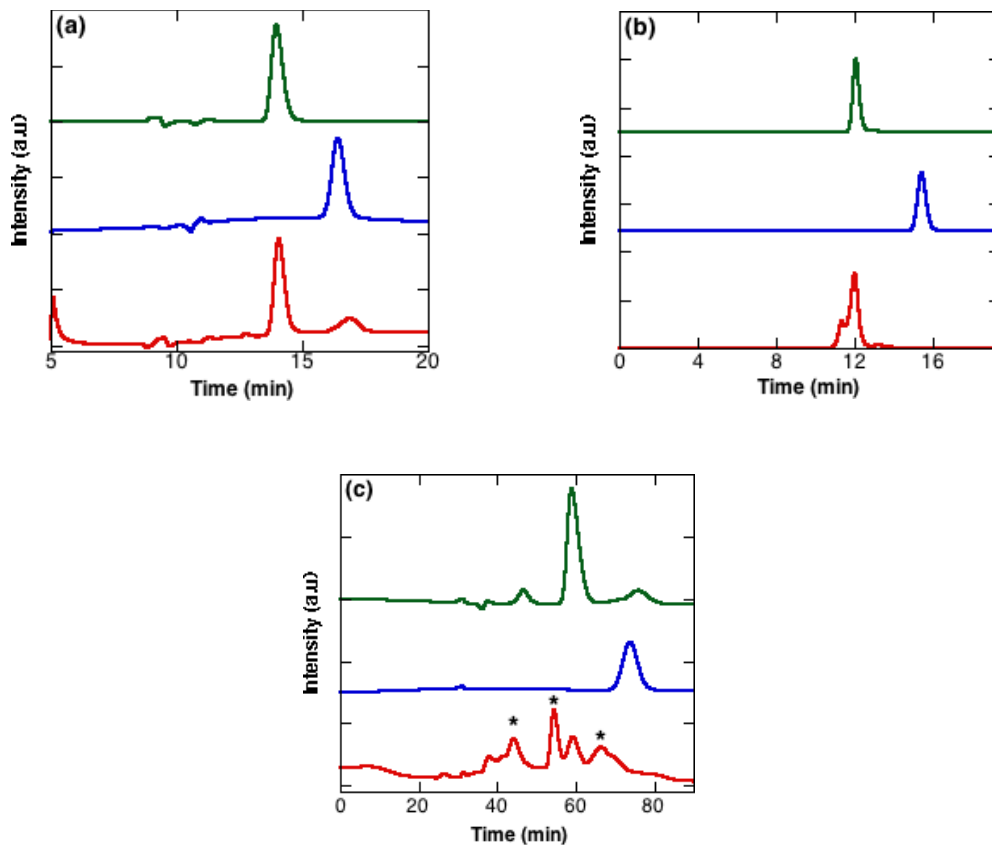
Figure S3. Reverse-phase HPLC chromatograms monitoring the UVA-initiated AuNP/KNbO$_3$-catalyzed reduction of (a) 4-nitrobenzene (**2**), (b) 4-nitroacetophenone (**4**) and (c) 4-nitroanisole (**5**). HPLC of the reaction mixtures after 14 hr. of UVA light exposure are shown in red. HPLC chromatograms of the nitro starting materials (blue) and expected amino products (green) are also presented for comparison and were obtained using authentic commercial standards. Peaks denoted by (*) are unidentified and are not due to the starting material or product standards.
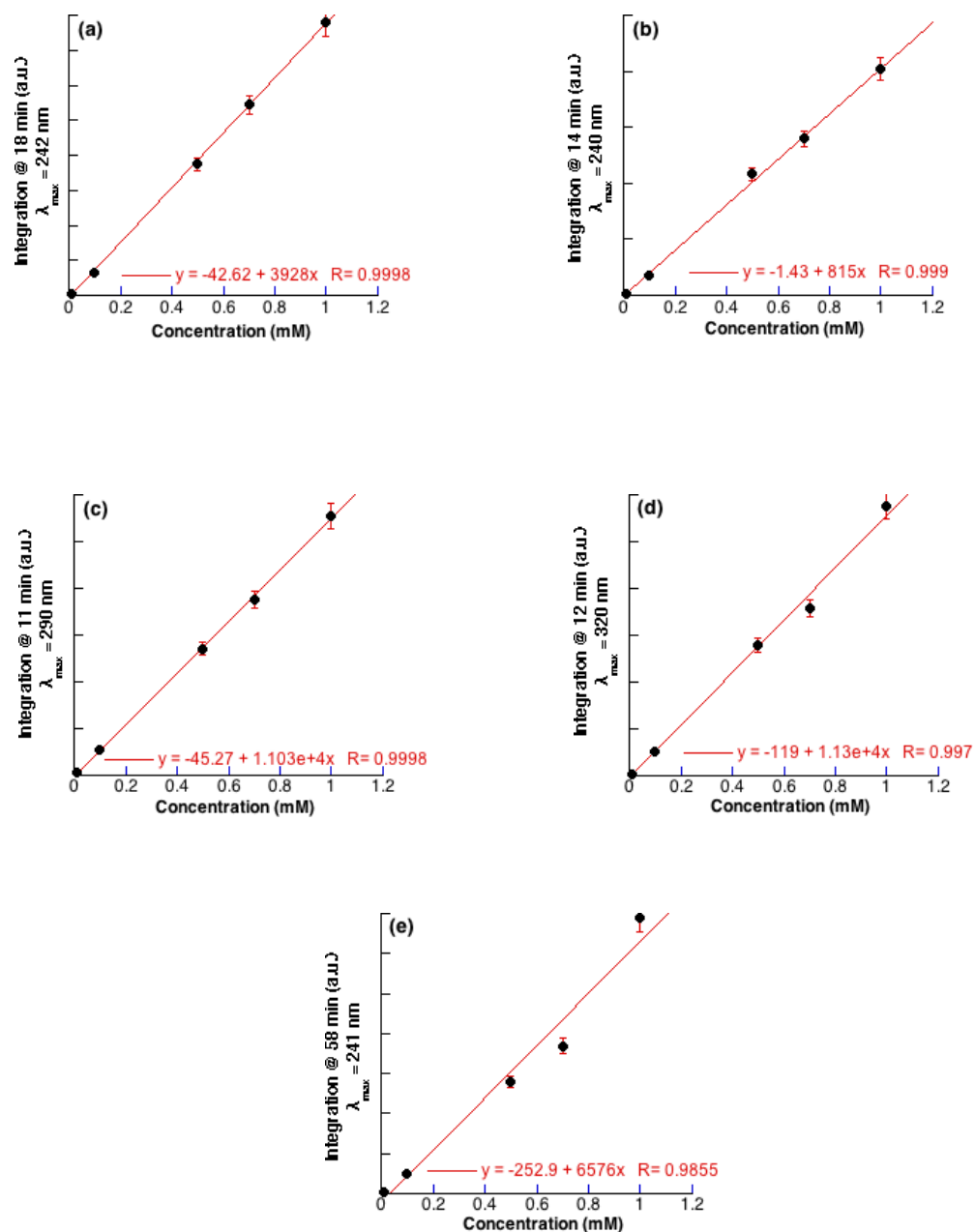
Figure S4. Calibration curves constructed using authentic aminoarene standards and used in the % yield calculations presented in Table 1: (a) 4-aminotoluene, (b) aniline, (c) 4-aminobenzoic acid, (d) 4-aminoacetophenone and (e) 4-aminoanisole.
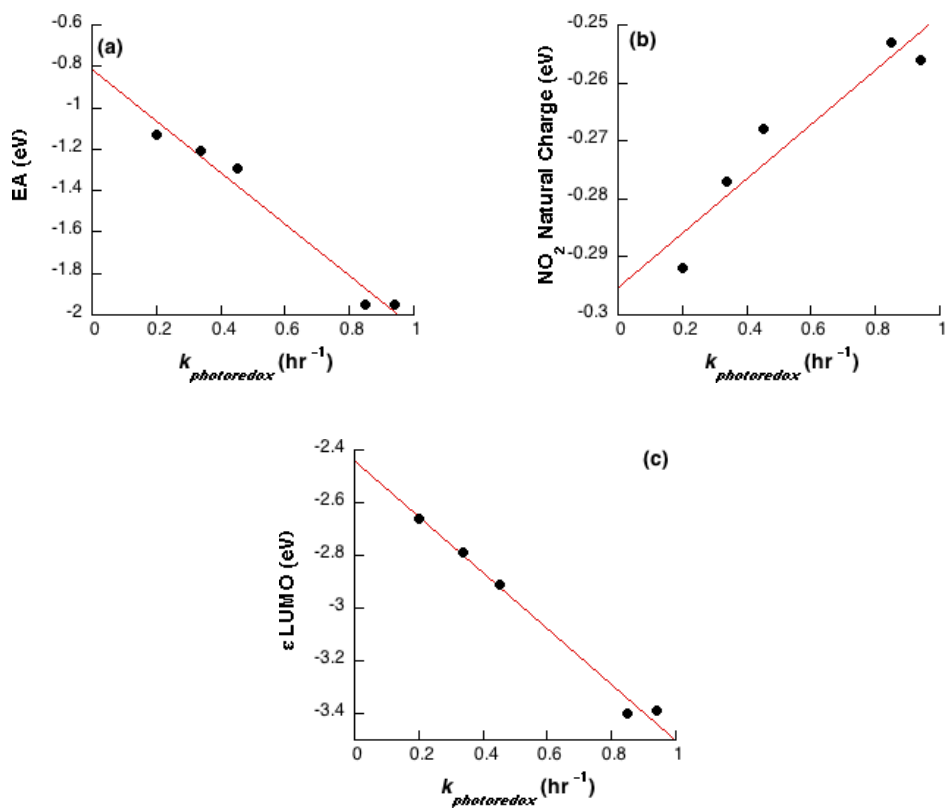
Figure S5. Plot of (a) EA *vs. k_photoredox*, (b) NO₂ natural charge *vs. k_photoredox* and (c) ε LUMO *vs. k_photoredox*.
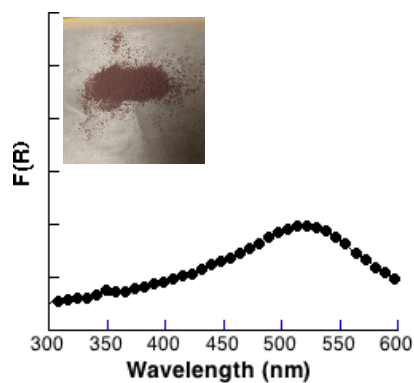

Figure S6. Diffuse reflectance spectrum of AuNP/Mg(OH)$_2$ illustrating suface plasmon abosprtion of the AuNP dopant at 530 nm. Inset depicts a photo of the AuNP/Mg(OH)$_2$ catalyst synthesized using NaBH$_4$ as a chemical reductant.
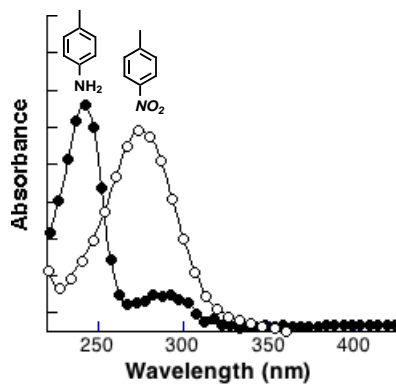
Figure S7. UV-visible spectrum monitoring the photocatalytic reduction of 4-nitrotoluene (**1**) using AuNP/KNbO₃ (●) and AuNP/Mg(OH)₂ (○) following 6 hr of UVA irradiation.

Figure S8. Photo of AuNP/KNbO₃ catalyst synthesized using NaBH₄ as a chemical reducing agent.