Electron-rich Pt anchored on covalent triazine frameworks for the selective hydrogenation of halogenated nitrobenzenes

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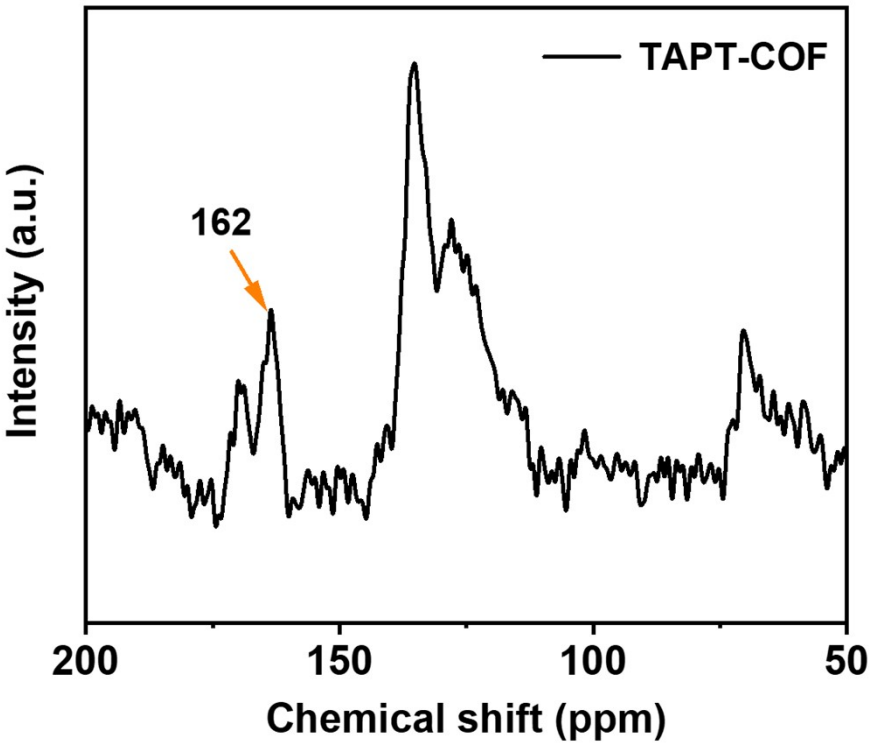


Figure S1. The ^{13}C NMR of TAPT-COF.

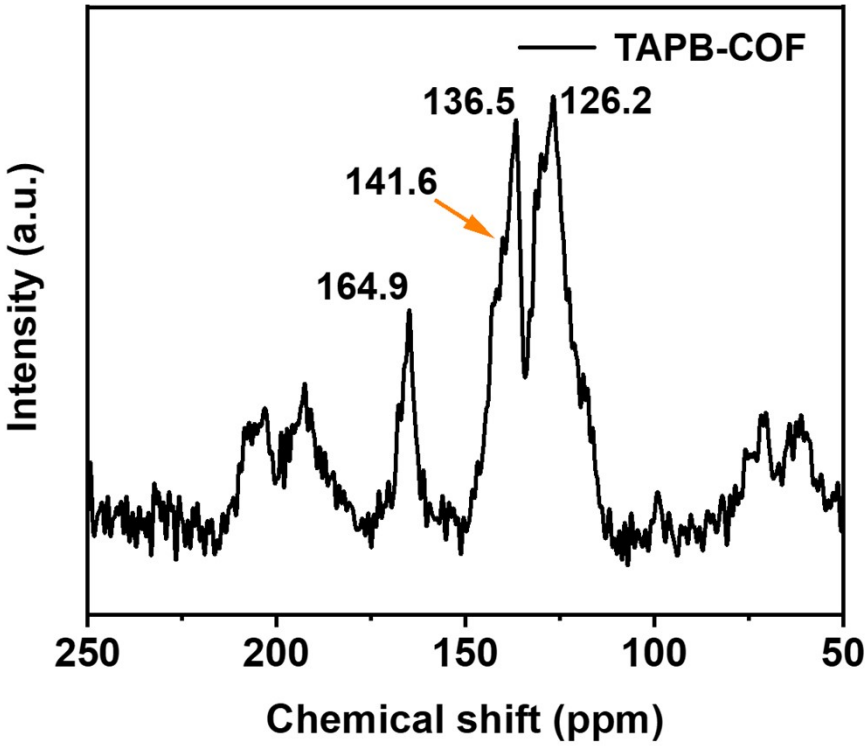


Figure S2. The ^{13}C NMR of TAPB-COF.

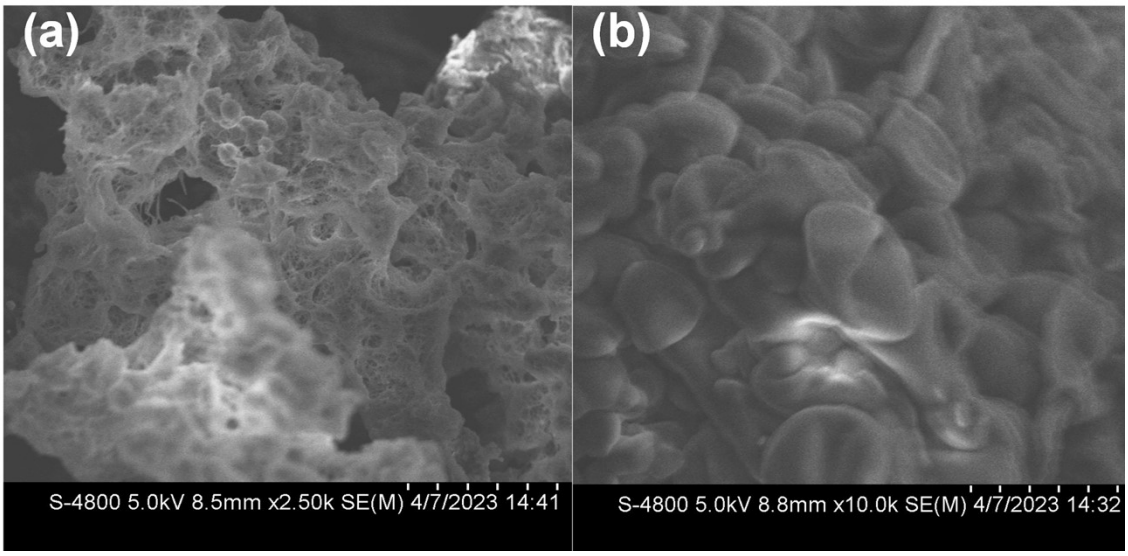


Figure S3. (a) SEM image of TAPT-COF. (b) SEM image of TAPB-COF.

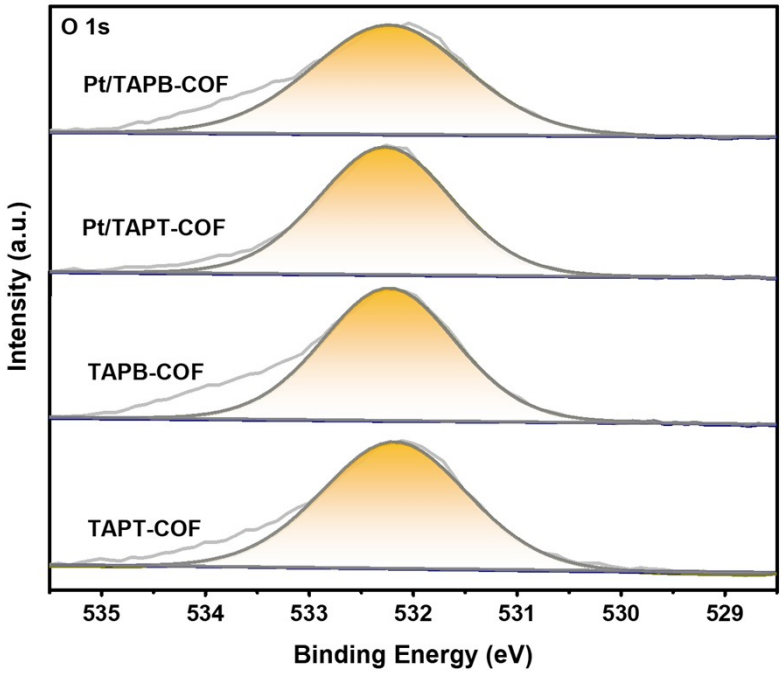


Figure S4. High-resolution O 1s XPS spectra of TAPT-COF, Pt/TAPT-COF, TAPB-COF and Pt/TAPB-COF.

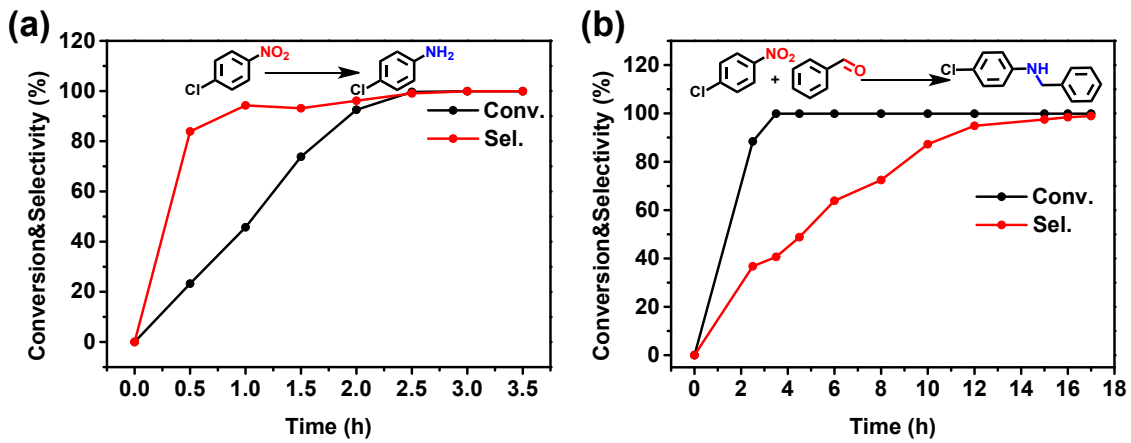


Figure S5. (a) Evolution curves of conversion and selectivity over time for hydrogenation of *p*-chloronitrobenzene (*p*-CNB). （b）Evolution curves of conversion and selectivity over time for tandem reaction of *p*-CNB and benzaldehyde.

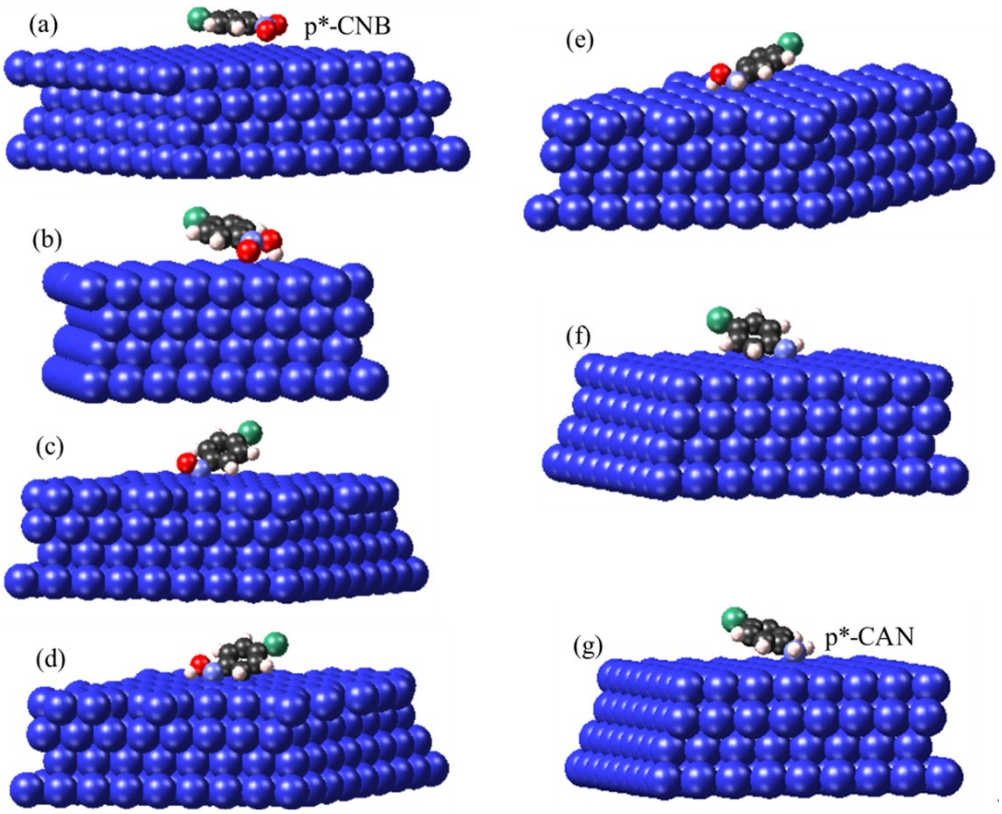


Figure S6. Structures in the stage of hydrogenation reduction of *p*-CNB to form *p*-CAN on surface of Pt (111).

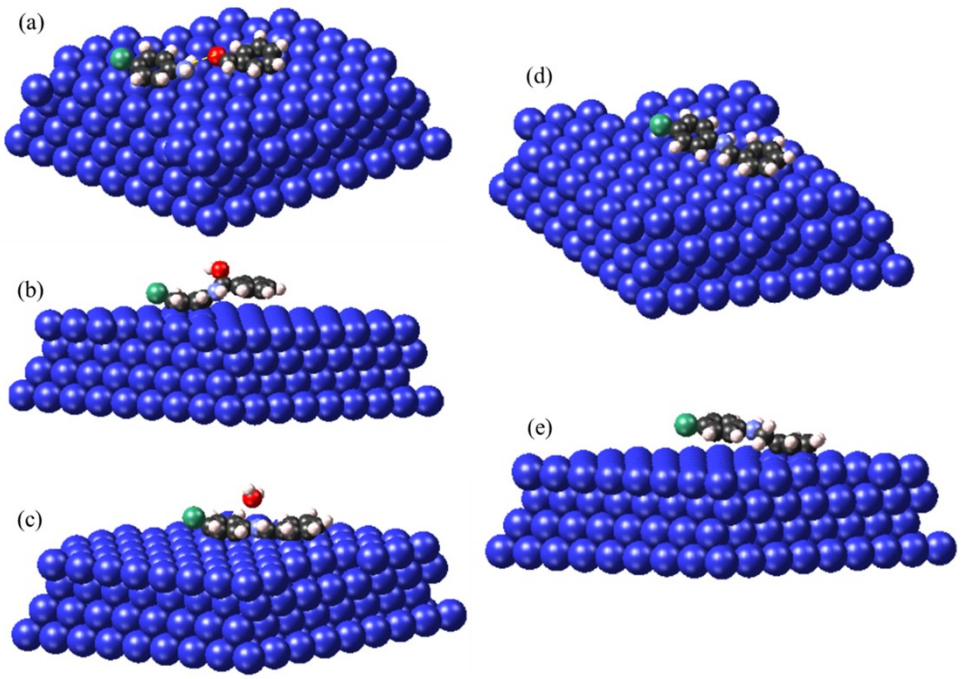


Figure S7. Structures in the stages of coupling elimination and imine hydrogenation on of Pt (111) surface.

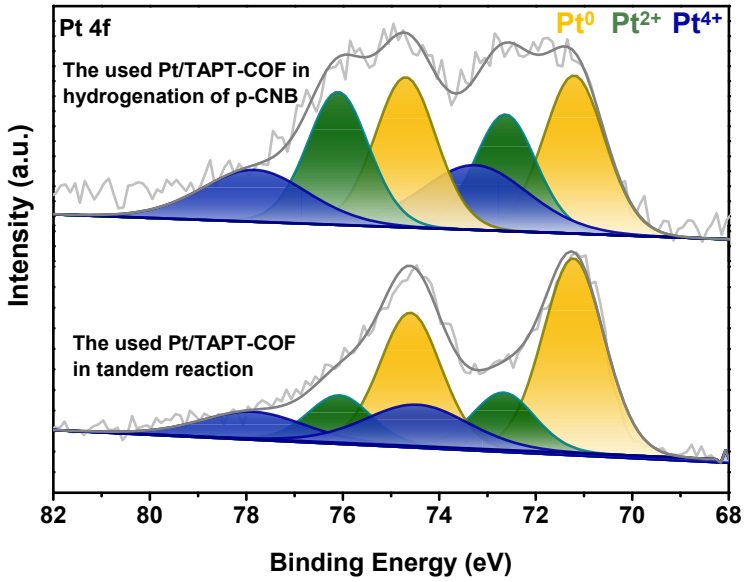


Figure S8. High-resolution Pt 4f XPS spectrum of the used Pt/TAPT-COF in hydrogenation of *p*-CNB and the tandem reaction.

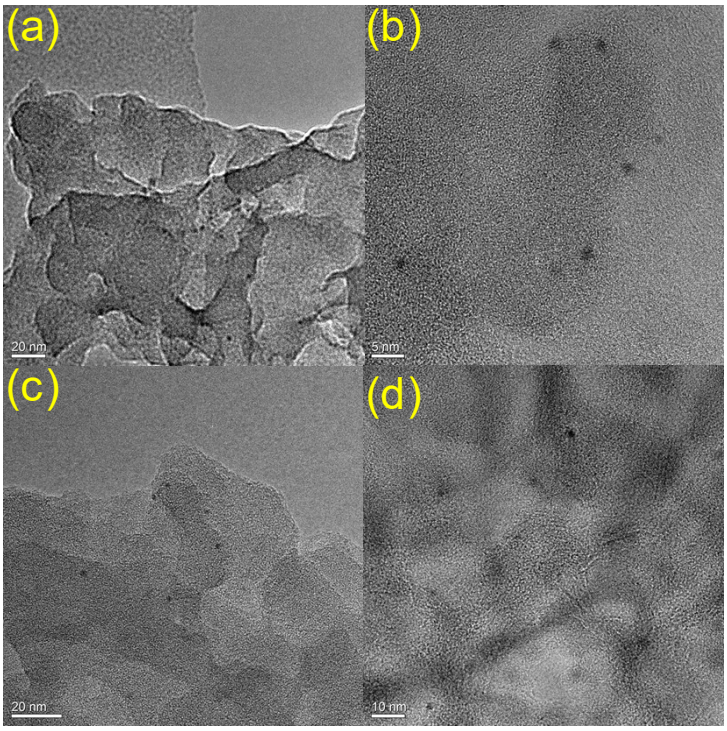


Figure S9. (a-b) TEM images of the used Pt/TAPT-COF in hydrogenation of *p*-CNB. (c-d) TEM images of the used Pt/TAPT-COF in the tandem reaction.

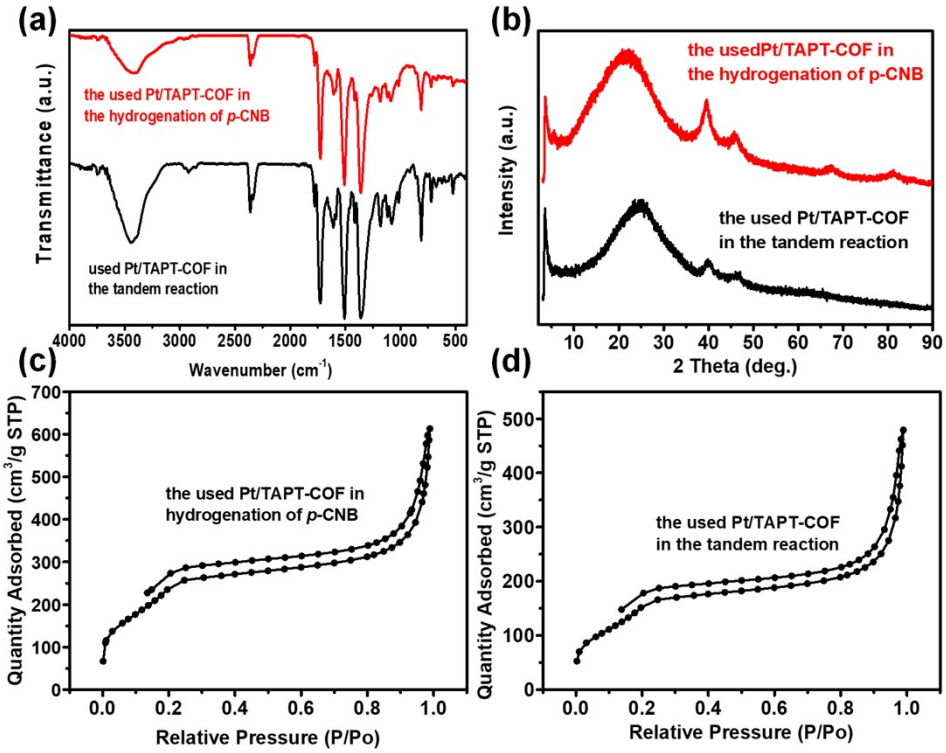
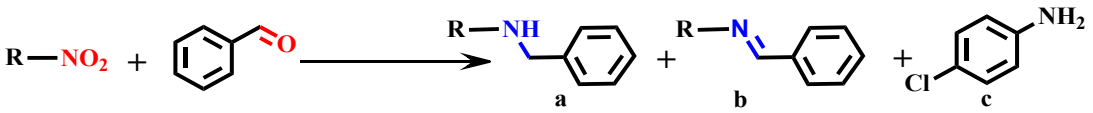


Figure S10. (a) FT-IR for the used Pt/TAPT-COF in the hydrogenation of *p*-CNB and the used Pt/TAPT-COF in the tandem reaction. (b) PXRD of the used Pt/TAPT-COF in the hydrogenation of *p*-CNB and the used Pt/TAPT-COF in the tandem reaction. (c) Nitrogen adsorption/desorption isotherms of the used Pt/TAPT-COF in hydrogenation of *p*-CNB. (d) Nitrogen adsorption/desorption isotherms of the used Pt/TAPT-COF in the tandem reaction.

Table S1. The Products distribution of cascade reaction catalyzed by Pt(5%)/C.[a]



Entry	Catalyst	Catalyst amount (mg)	Solvent (3 mL)	T (°C)	Time (h)	Conv. (%)	a (%)	b (%)	c (%)
1	Pt(5%)/C	15	THF	60	16	99.9	61.0	37.1	1.9
2	Pt(5%)/C	15	DMF	60	16	99.9	3.4	58.2	38.4
3	Pt(5%)/C	15	Ethanol	60	16	98.9	82.3	17.7	-
4	Pt(5%)/C	15	H_2O	60	16	98.1	0.3	8.7	91.0

[a] **Reaction conditions:** *p*-chloronitrobenzene (*p*-CNB, 0.5 mmol), benzaldehyde (0.7 mmol), H_2 balloon and solvent (3 mL). All products were analyzed by GC-MS and GC.