

Electronic Supplementary Material (ESI) for Physical Chemistry
Chemical Physics.

Supporting Information for

Carbon-based Frustrated Lewis pairs mediated hydrogenation

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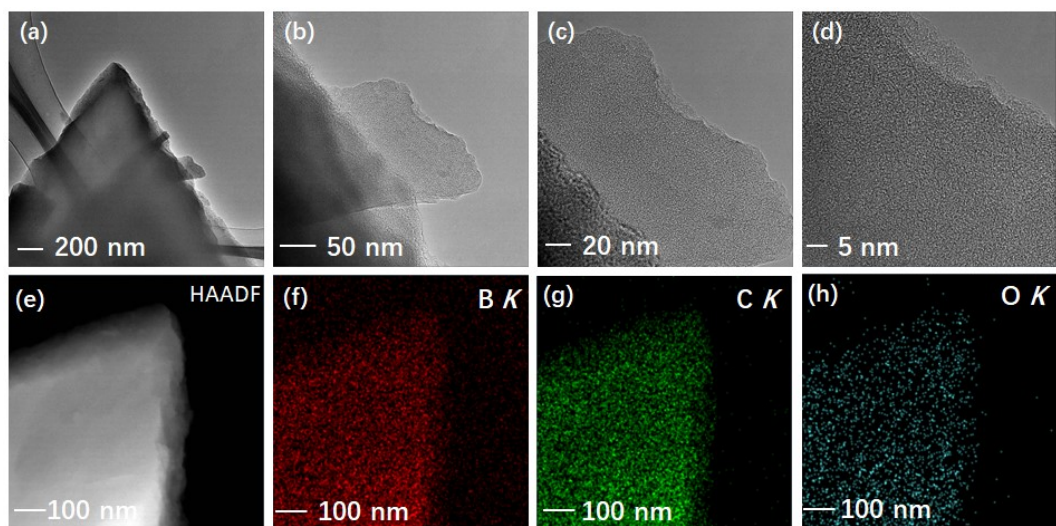


Fig. S1. (a) TEM image, (b-d) HRTEM images, (e-h) HAADF-STEM image and corresponding elemental mapping images of BC.

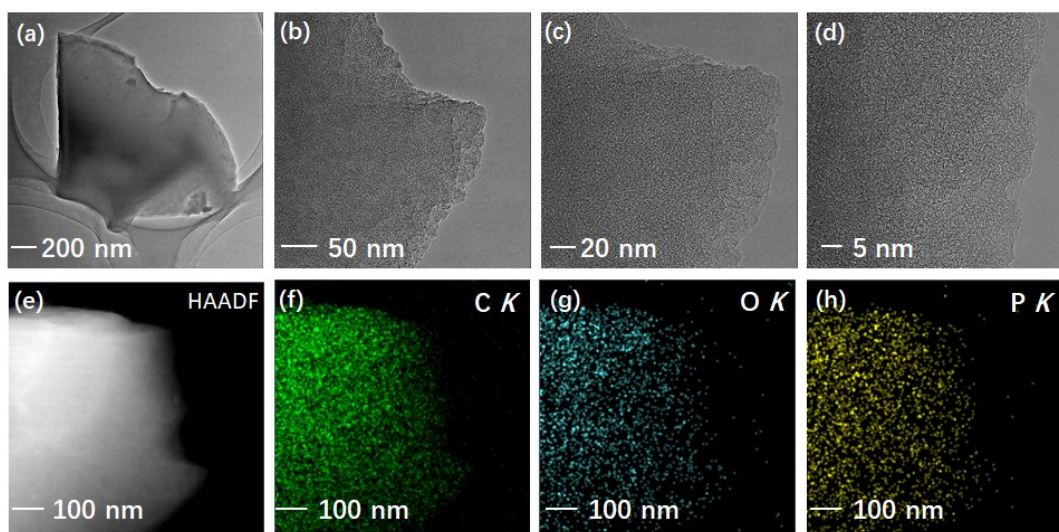


Fig. S2. (a) TEM image, (b-d) HRTEM images, (e-h) HAADF-STEM image and corresponding elemental mapping images of PC.

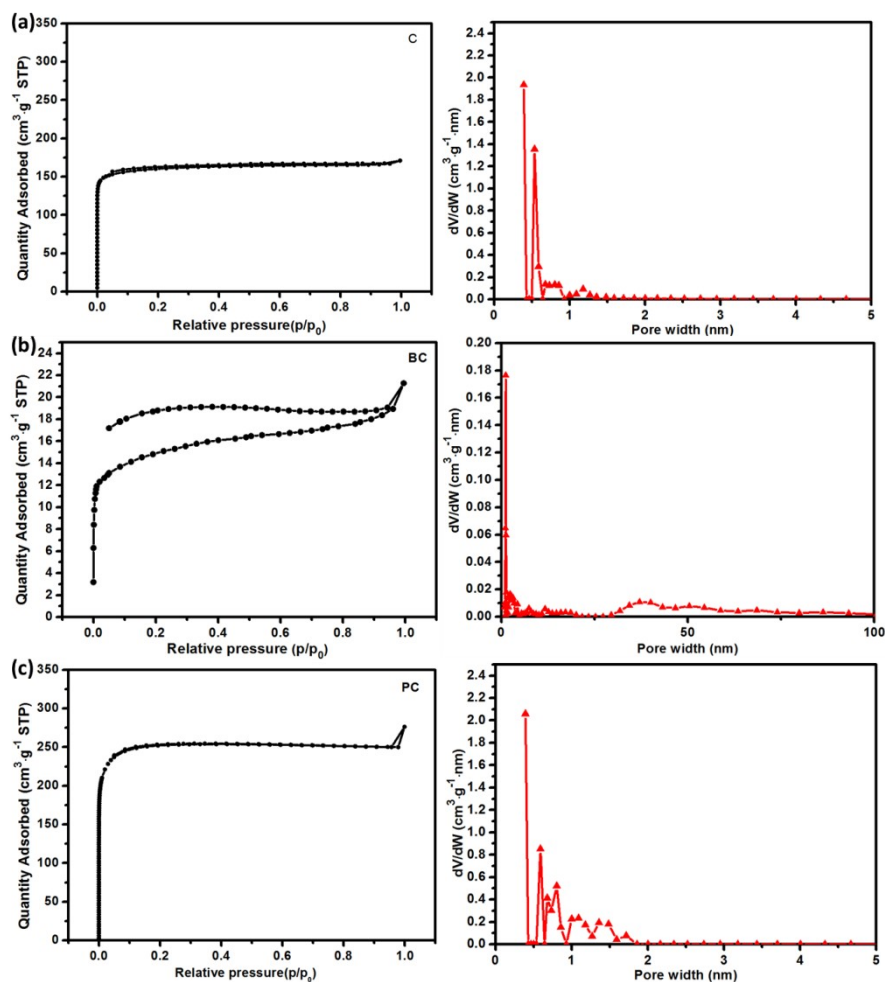


Fig. S3. N₂ adsorption-desorption isotherms on (a) α -cellulose derived carbon, (b) BC and (c) PC samples.

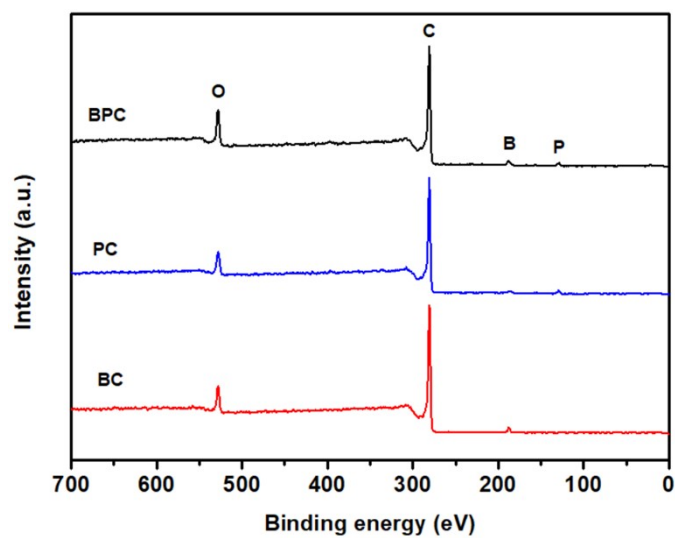


Fig. S4. XPS survey spectrum for BC, PC and BPC samples.

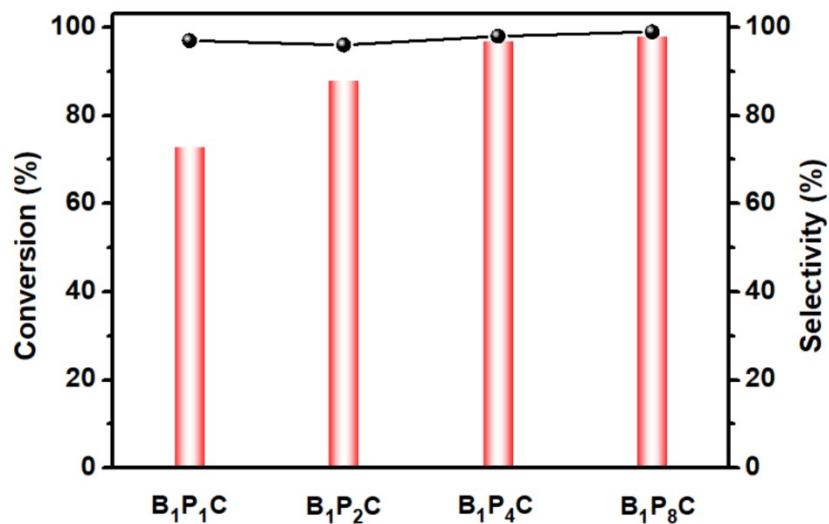


Fig. S5. The catalytic activity over different P/B ratio doped carbon catalyst (Reaction condition: 0.2 mmol nitrobenzene, 10 mL EtOH, 3 MPa H₂, 140 °C, 20 mg catalysts, 15 hours).

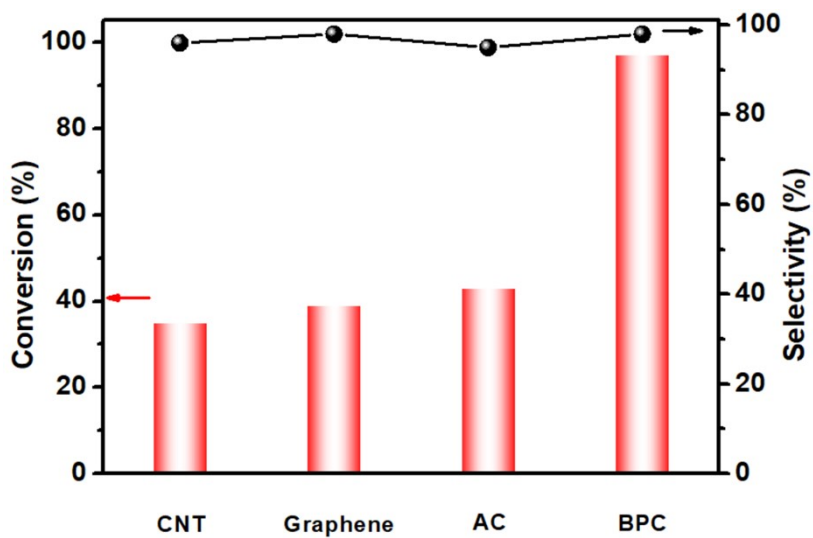


Fig. S6. Catalytic performances over CNT, graphene, AC and BPC samples (reaction condition: Reaction condition: 0.2 mmol nitrobenzene, 20 mg catalyst, 3 MPa H₂, 10 mL EtOH, 140 °C, 15 hours).

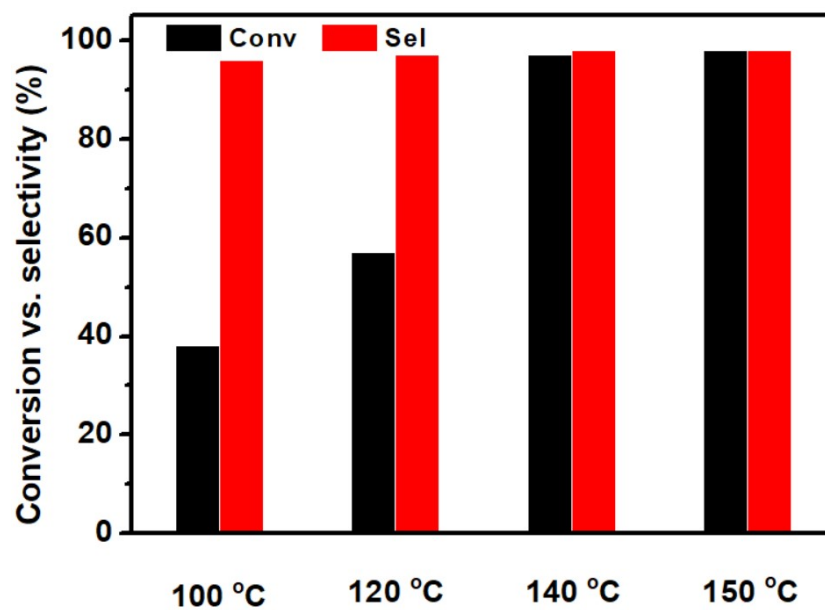


Fig. S7. The effects of temperature on the catalytic performance for BPC sample (Reaction condition: 0.2 mmol nitrobenzene, 10 mL EtOH, 3 MPa H₂, 100-150 °C, 20 mg catalysts, 15 hours).

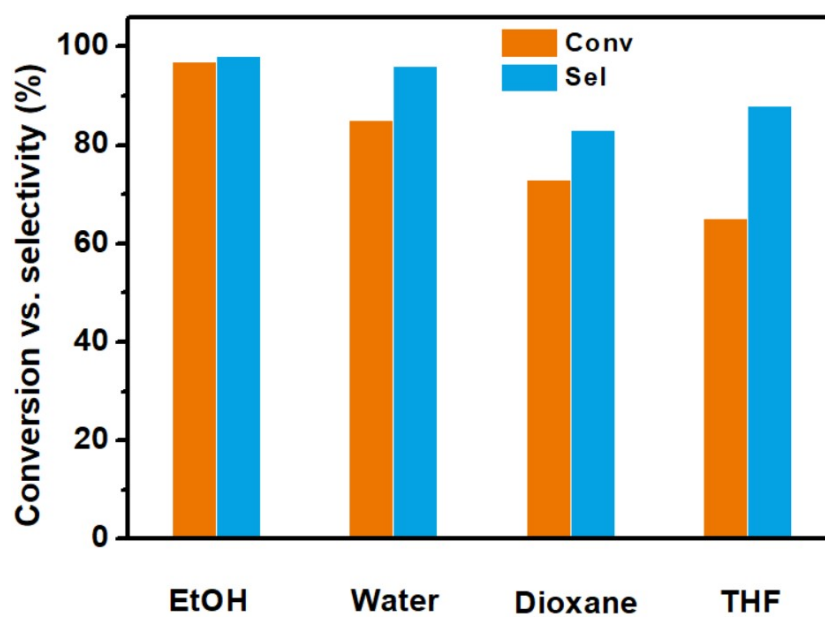


Fig. S8. The effects of solvent on the catalytic performance in nitrobenzene hydrogenation over BPC catalyst (Reaction condition: 0.2 mmol nitrobenzene, 3 MPa H₂, 140 °C, 20 mg catalysts, 15 hours, different solvents).

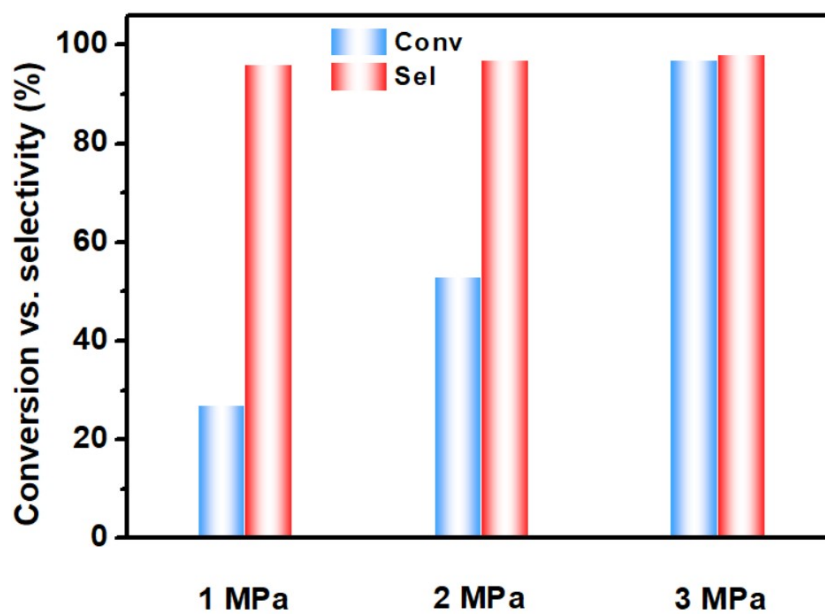


Fig. S9. The effects of H₂ pressure on the catalytic performance in nitrobenzene hydrogenation over BPC catalyst (Reaction condition: 0.2 mmol nitrobenzene, 10 mL EtOH, 1-3 MPa H₂, 140 °C, 20 mg catalysts, 15 hours).

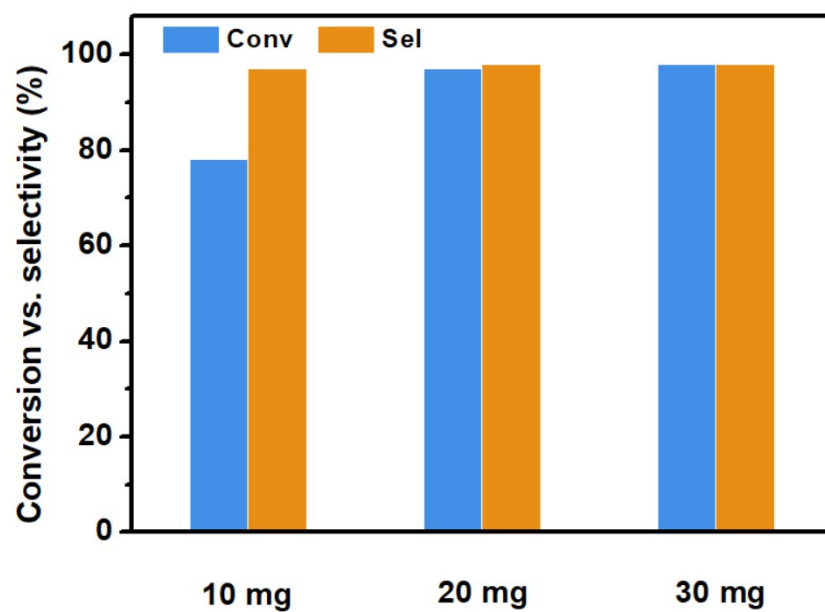


Fig. S10. The effects of catalyst dosage on the catalytic performance in nitrobenzene hydrogenation over BPC sample (Reaction condition: 0.2 mmol nitrobenzene, 10 mL EtOH, 3 MPa H₂, 140 °C, 10-30 mg catalysts, 15 hours).

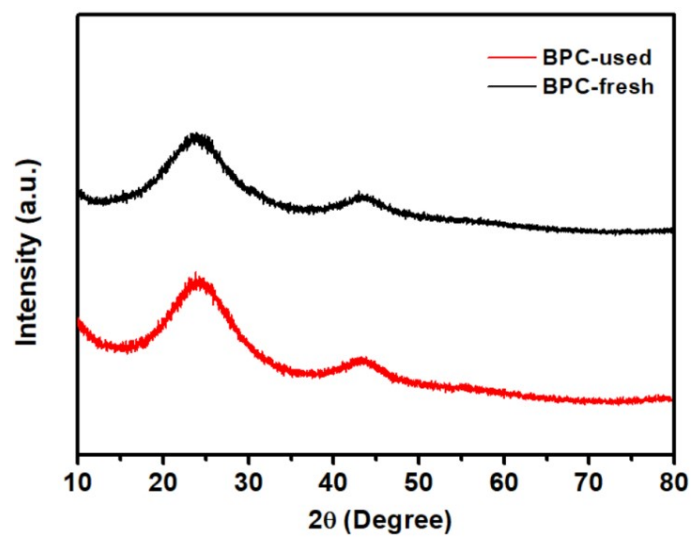


Fig. S11. XRD spectra for spent and fresh BPC samples.

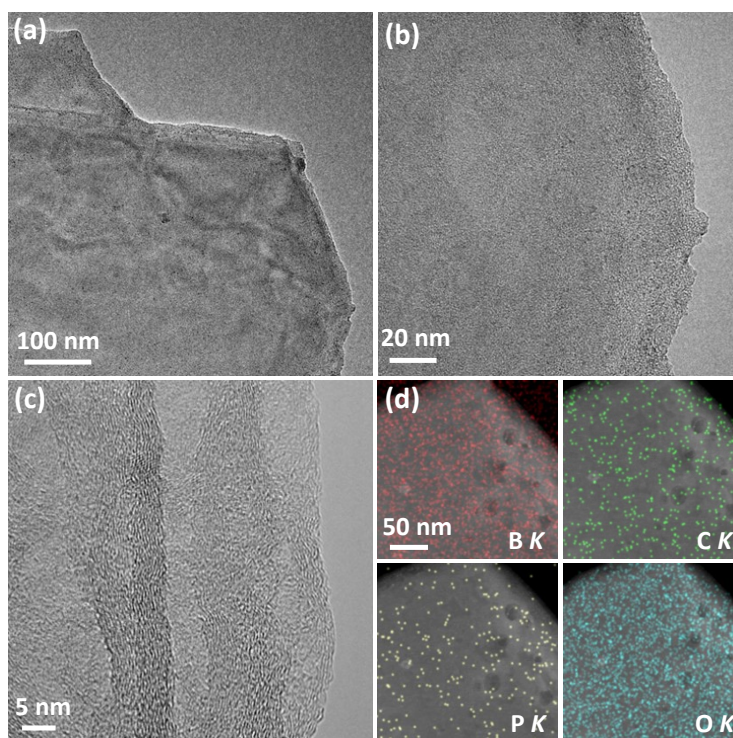


Fig. S12. (a) TEM image of spent BPC catalyst, (b,c) HRTEM images, (d) Elemental mapping images of spent BPC catalyst.