

Supporting Information

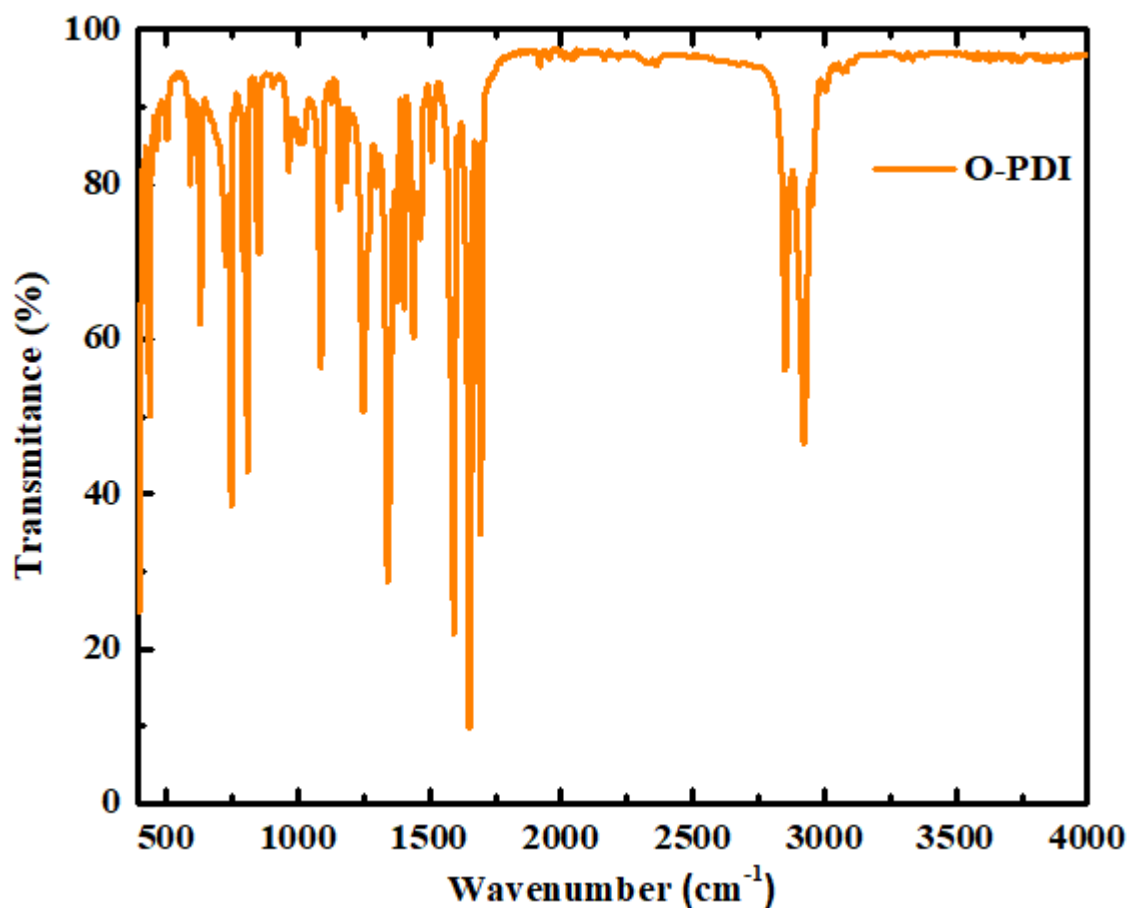
Synthesis and characterization of O-PDI for futuristic optoelectronic rectifier applications

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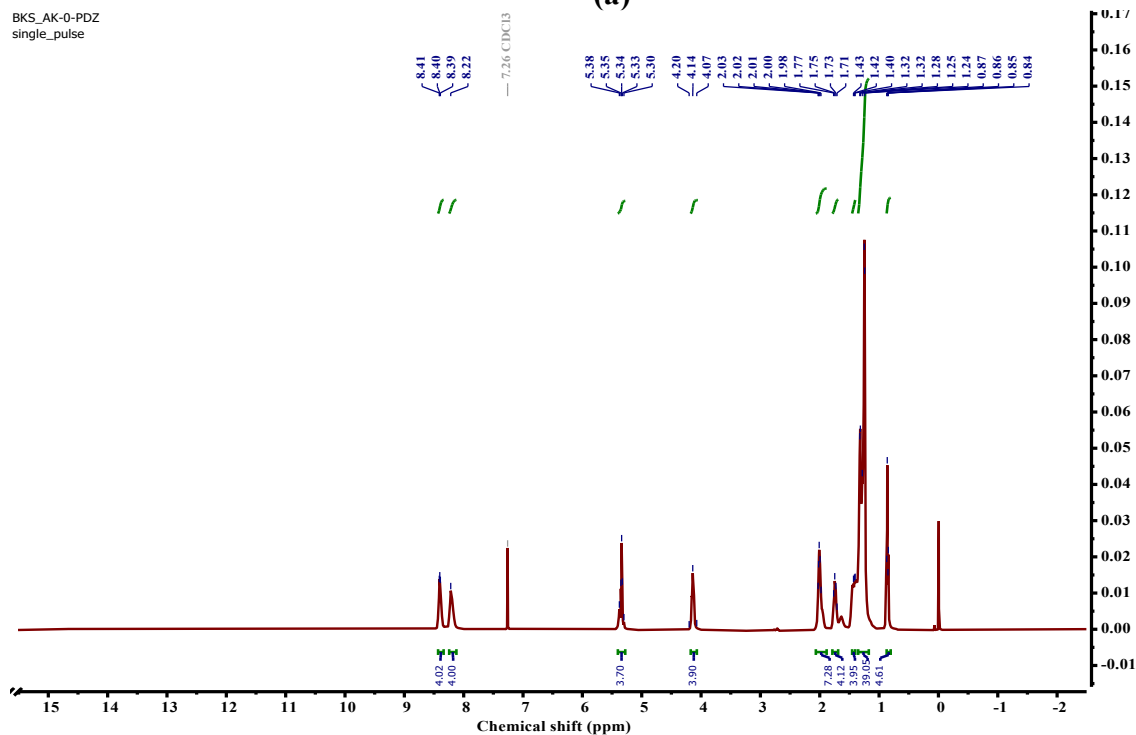
Figure S1: FT-IR Spectrum of O-PDI.



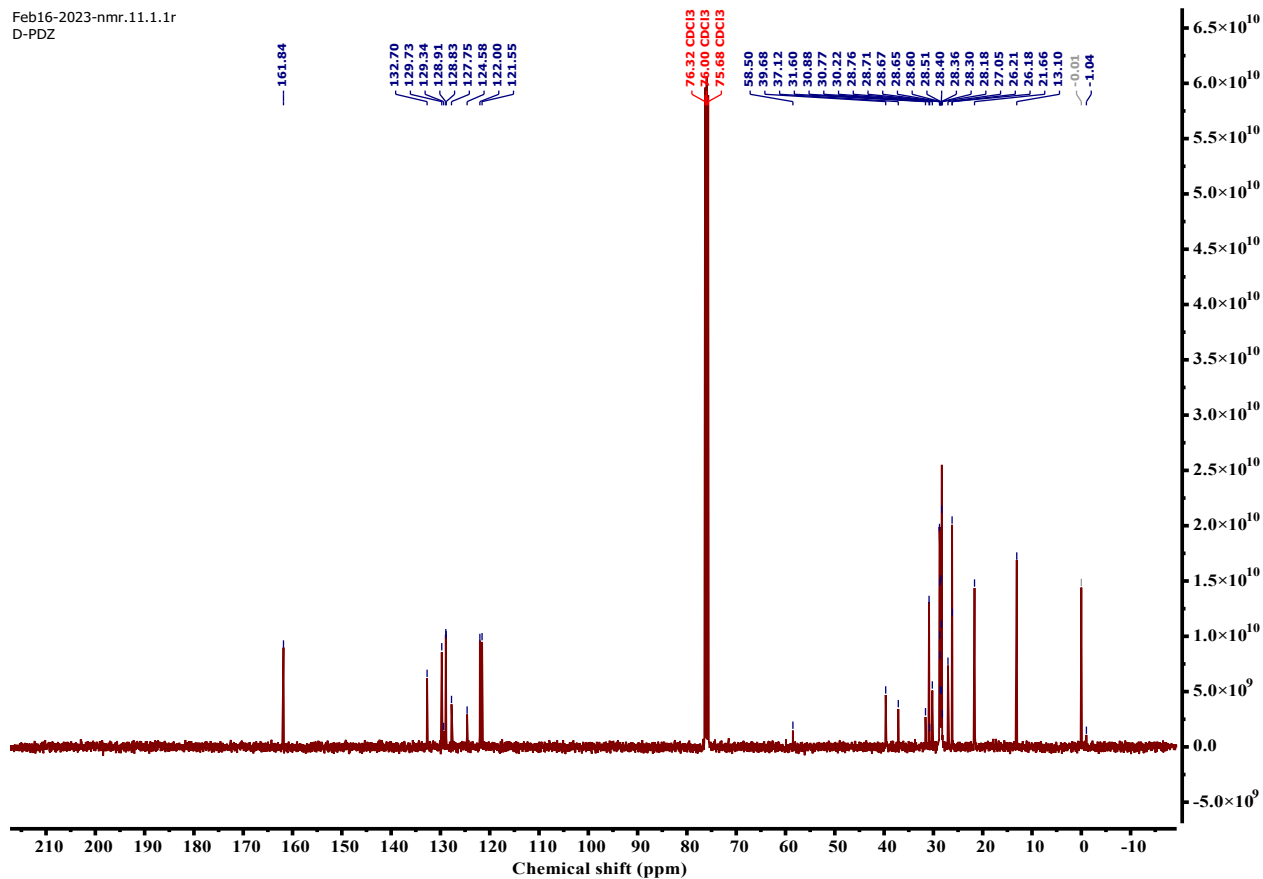
FT-IR ($\tilde{\nu}$ cm⁻¹) = 2922(C-H), 2850 (C-H), 1693 (-C=O), 1651 (-C=O), 1591 (-C=C-), 1577 (-C=C-), 1465 (CH₃ bend), 1438 (CH₂ bend), 1404 (C-N_{str}), 1377 (CH₃ sym), 746 (C=C_{cis alkene}), 727 (C=C_{cis alkene}), 630 (-N-C=O bend), 435 (C-N-C bend).

Figure S2: NMR Spectrum of OPDI (a) Proton NMR, (b) carbon NMR.

BKS_AK-0-PDZ
single_pulse



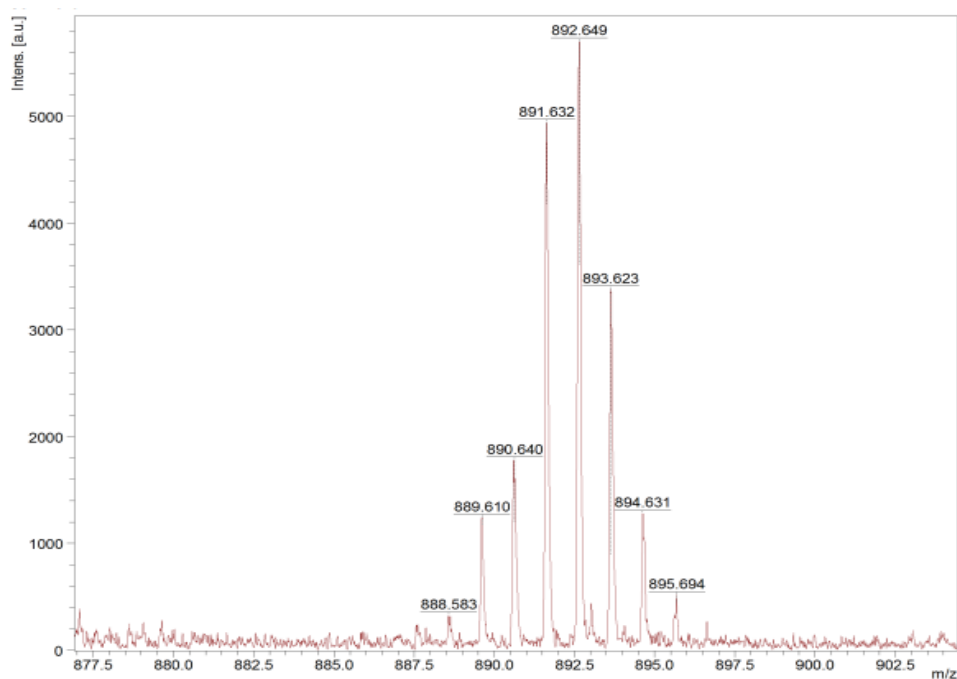
Feb16-2023-nmr.11.1.1r
D-PDZ



¹H NMR (400 MHz, CHLOROFORM-*D*) δ 8.4 (d, 4H), 8.2 (d, 4H), 5.35 (m, 4H), 4.14 (t, 4H), 1.98 (m, 8H), 1.77 (m, 4H), 1.42 (m, 4H), 1.25-1.29 (m, 40H), 0.86 (t, 6H).

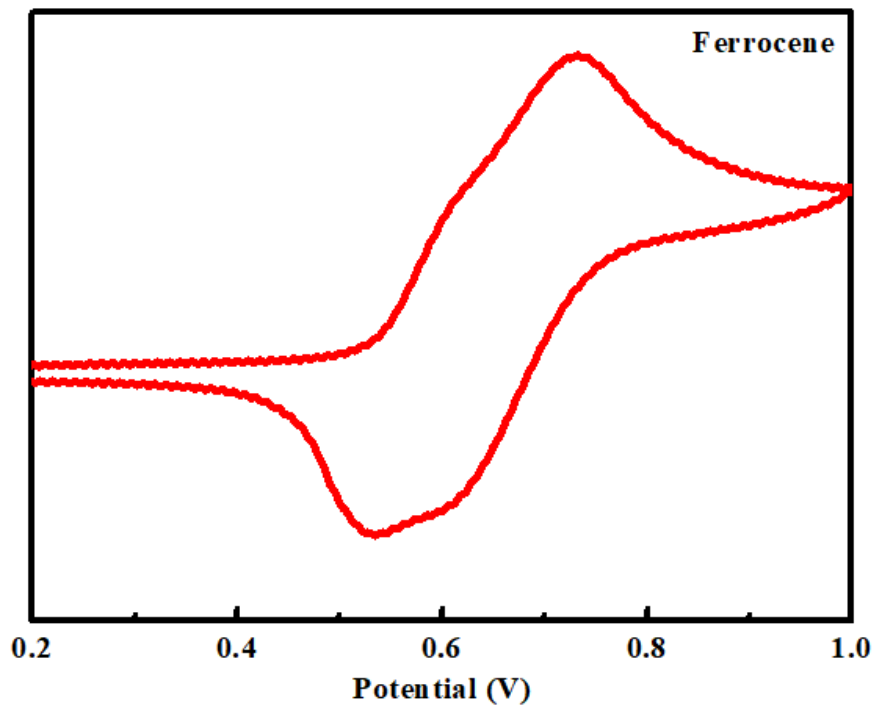
¹³C NMR (101 MHz, CDCl₃) δ 161.84, 132.70, 129.73, 129.34, 128.91, 128.83, 127.75, 124.58, 122.00, 121.55, 58.50, 39.68, 37.12, 31.60, 30.88, 30.77, 30.22, 28.76, 28.71, 28.67, 28.65, 28.60, 28.51, 28.40, 28.36, 28.30, 28.18, 27.05, 26.21, 26.18, 21.66, 13.10.

Figure S3: MALDI-TOF Mass Spectrum of O-PDI.



MALDI-TOF: $m/z = 890.2427g$ Calculated for $C_{60}H_{78}N_2O_4 = 890.640$

Figure S4: cyclic voltammetry of Ferrocene.



$$E_{\text{Fc}/\text{Fc}^+} = E_{\text{anode}} = 0.732\text{V}, E_{\text{cathode}} = 0.535\text{V},$$

$$E_{\text{Fc}/\text{Fc}^+} = 0.633\text{V}$$