

Supporting information

High performance phenyl-free LED photoinitiator for cationic or hybrid photopolymerization and its application in LED cationic 3D printing

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Synthesis of 1,3-bis(1-methyl-1H-pyrrol-2-yl)prop-2-en-1-one

2mL N-Methylpyrrole-2-carboxaldehyde, 2mL 2-Acetyl-1-methylpyrrole, 20mL ethanol and 0.1g NaOH, 10g deionized water were added into a 100mL three-necked round bottom flask. The solution was stirred by magnetic stirrer at room temperature for 8 h under the nitrogen protection. The crude product was obtained by filtration under reduced pressure and was purified by recrystallization from Ethanol. The pure product was obtained as a Light yellow crystal. ¹H NMR (400 MHz, CDCl₃, δ): 7.856-7.837 (t, 1H, NMPy-CH) , 7.818 (s, 1H, NMPy-CH) , 7.665 (d, 1H, C-CH=C) , 7.286 (s, 1H, NMPy-CH) , 7.215-7.178 (m, 1H, C=CH-C=O) 6.878-6.868 (d, 1H, NMPy-CH) , 6.845 (s, 1H, NMPy-CH) , 6.262-6.246 (t, 1H, NMPy-CH) 3.794 (s, 6H, N-CH₃)

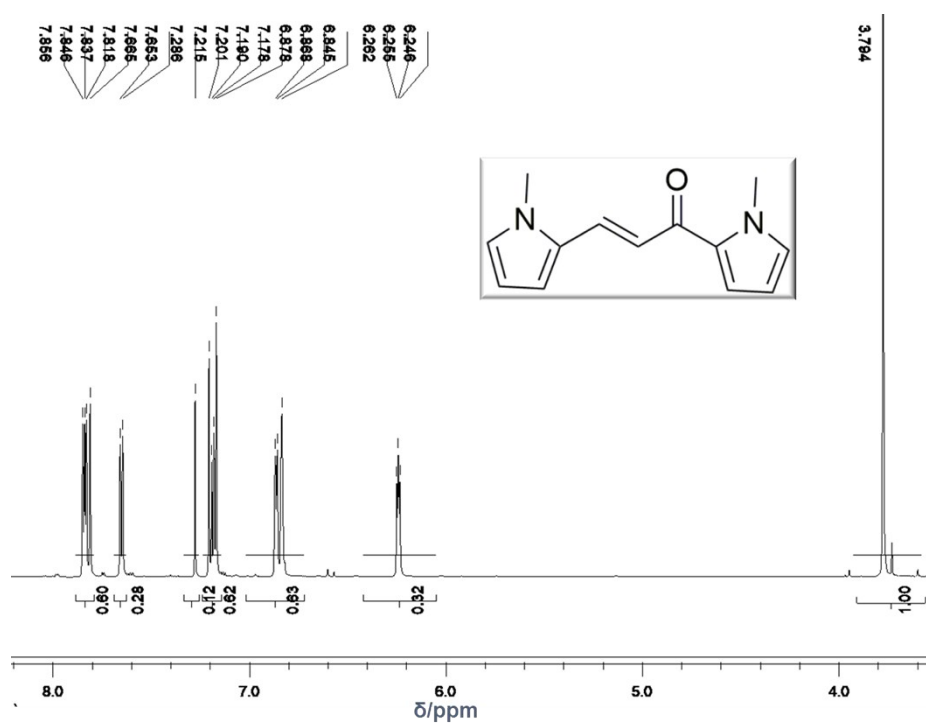


Figure S1 The ^1H NMR spectrum of BMO

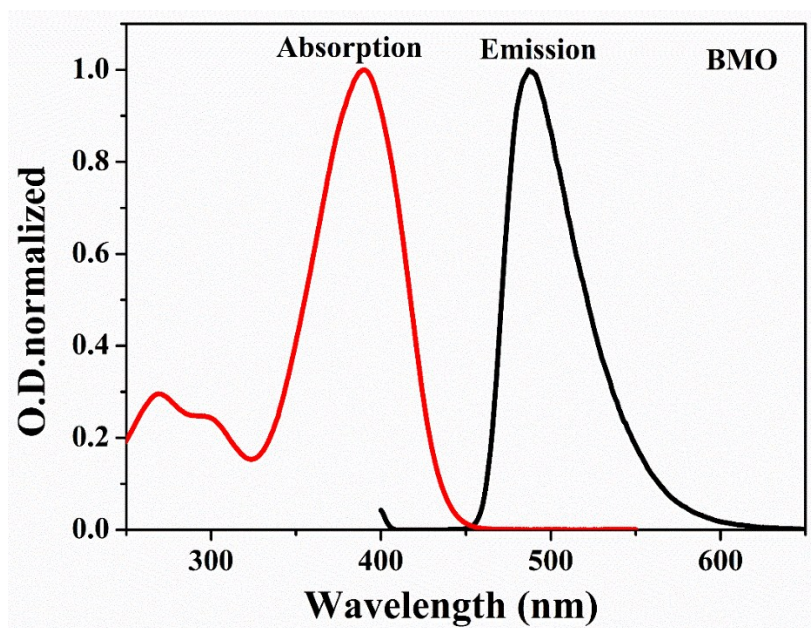


Figure S2 Normalized absorption and emission spectra of BMO in acetonitrile

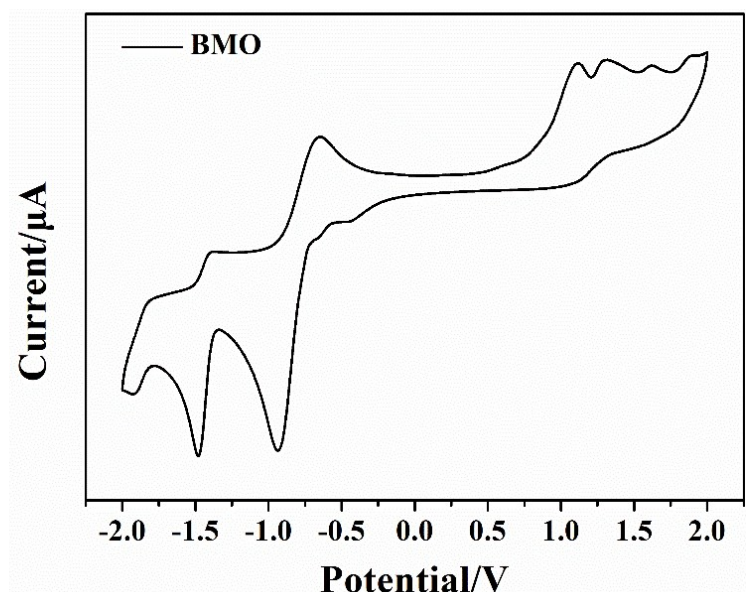


Figure S3 Cyclic voltammograms of BMO (4×10^{-4} mol/L) in anhydrous acetonitrile solution purged with N_2 . A platinum electrode at a scan rate of 100 mV s^{-1} with 0.1 M tetrabutylammonium hexafluorophosphate as the supporting electrolyte, and the reference electrode was a saturated calomel electrode (SCE). Ferrocene was used as a standard, and the potentials determined from the half-peak potential were referred to the reversible formal potential of this compound (+0.38 V/SCE).