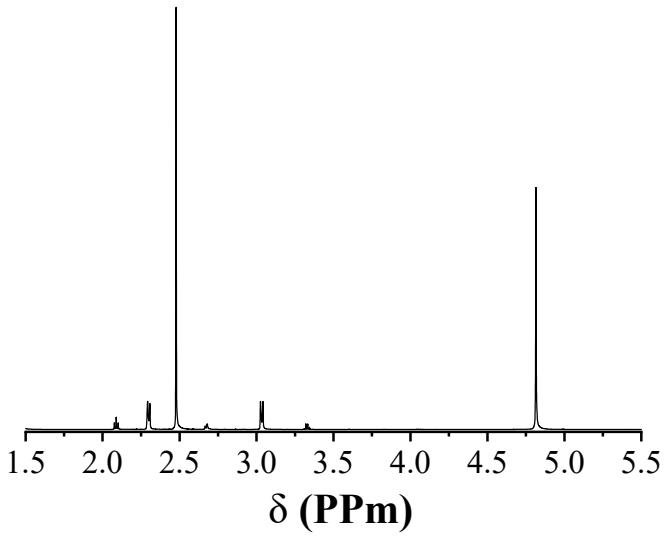
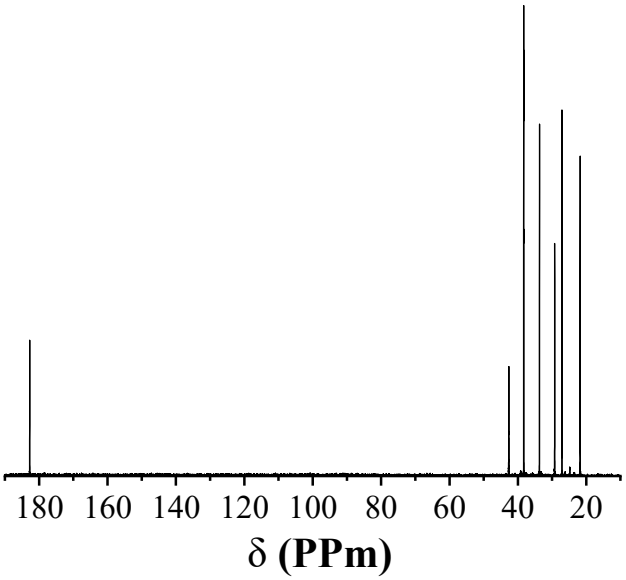
Novel Brønsted Acidic Ionic Liquids as High Efficiency Catalysts for Liquid-Phase Beckmann rearrangement

1. Characterization

The Model Shimadzu UV 2550 UV−vis spectrophotometer was used to determine the Hammett Brønsted acid scales (H_0) of ILs with ethanol as a reference. The content of water in ILs was determined by the Karl Fischer method (CBS−1A). The density of ILs was determined by the pycnometer method. The viscosity of ILs was determined with Anton-Paar SVM automatic motion viscometer at 25 ℃. Electrochemical stability was analyzed at a sweep rate of 50 mVs^{-1}.by cyclic voltammetry using an IVIUM V13806 Instruments Electrochemical Work Station at room temperature.



^{1}H 4.82(s), 3.33(s), 3.03(m), 2.68(s), 2.48(s), 2.30(m), 2.09(s)



^{13}C 182.74, 42.64, 38.27 ,33.70, 29.23, 27.10, 21.79

Figure S1. NMR spectrum of [CPL][2MSA].

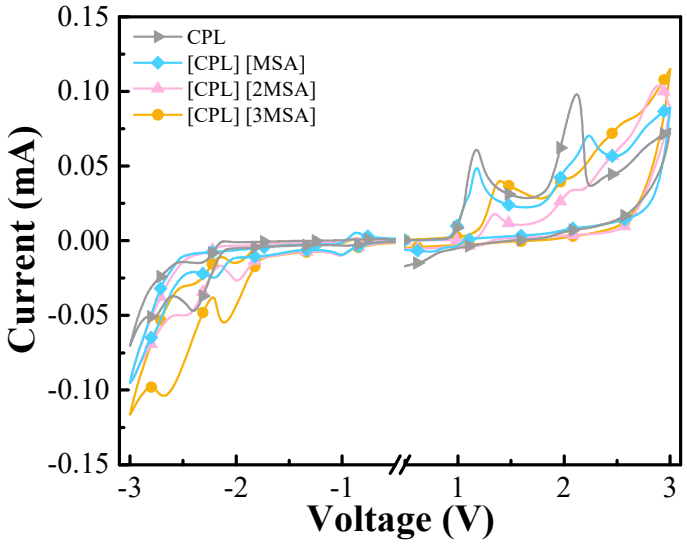


Figure S2. The electrochemical spectra of different samples.

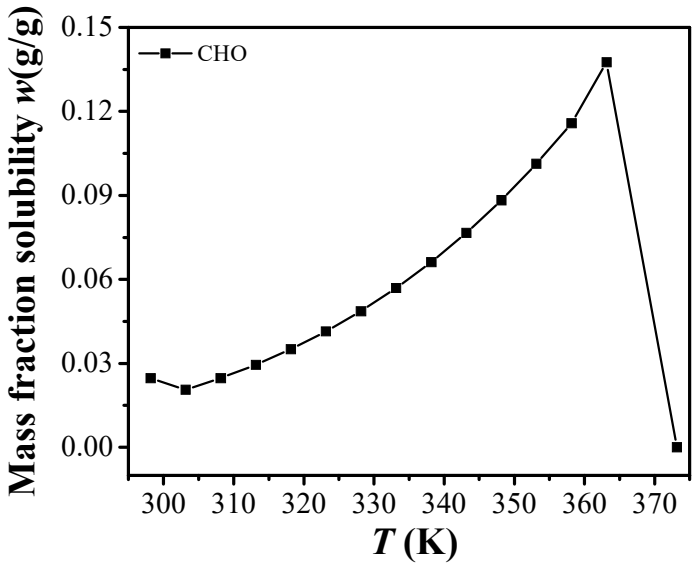


Figure S3. Predicted results for capacity of CHO in [CPL][2MSA] by COSMO-RS.

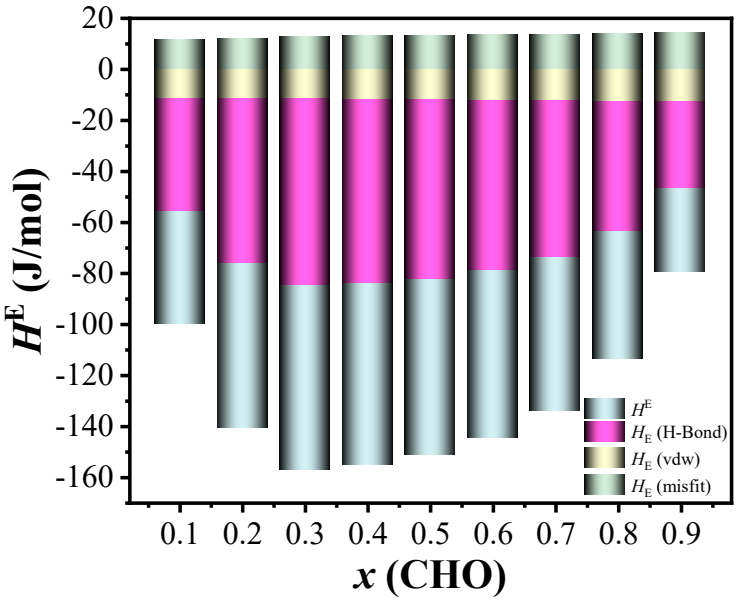


Figure S4. Excess enthalpies of CHO in [CPL][2MSA] at T = 363.15 K.