

Supplementary data

Unexpected formation of novel organometallic hetero-cation crystals with a rare coordination mode

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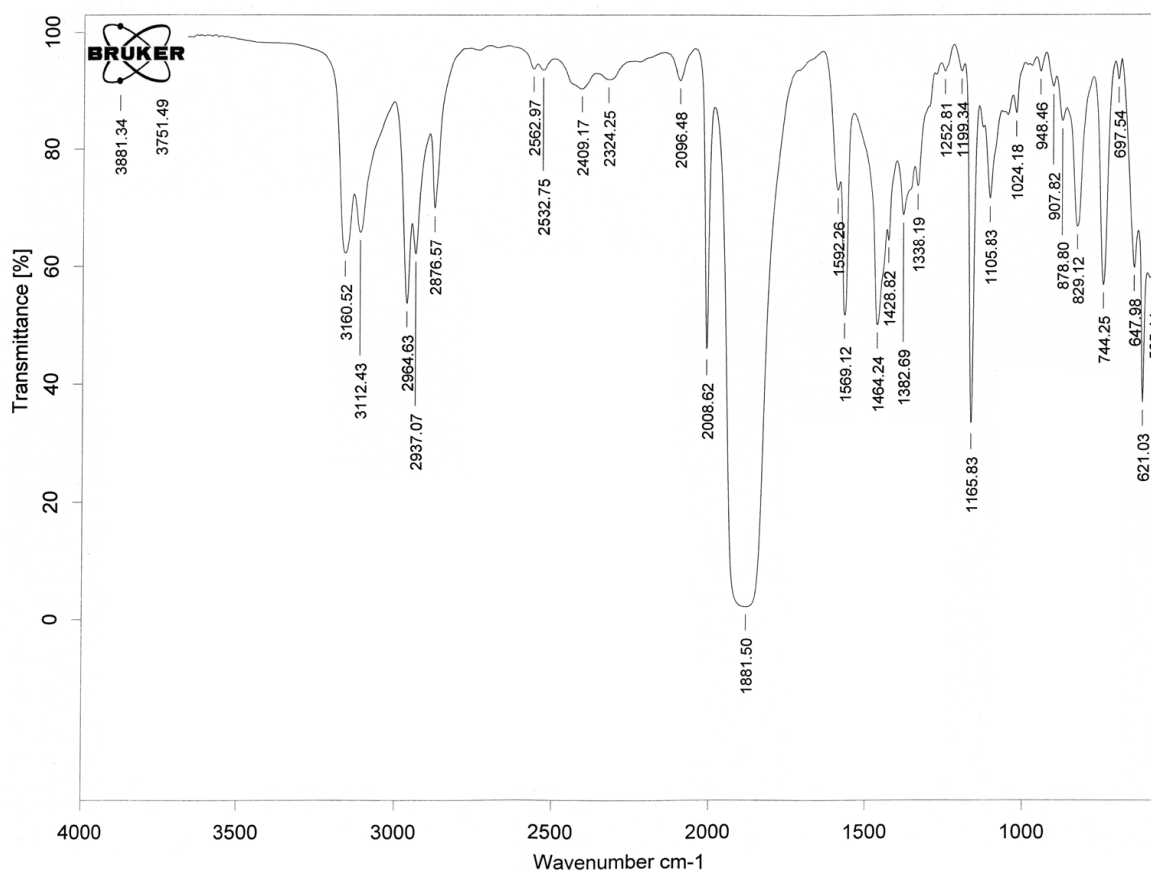


Figure 1. IR spectrum of [bmim]K[Co(CO)₄]₂ with [bmim][Co(CO)₄] residue (KBr)

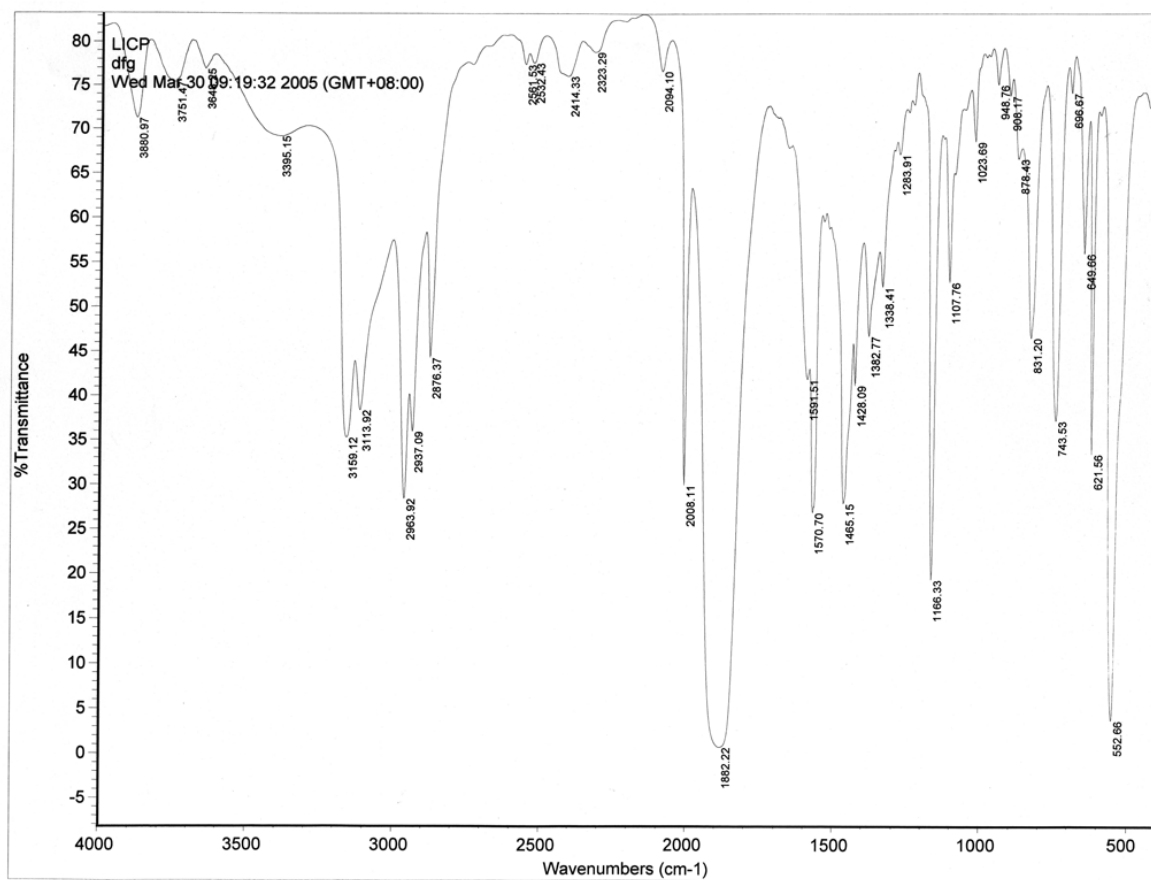


Figure 2. IR spectrum of neat [bmim][Co(CO)₄] (KBr)

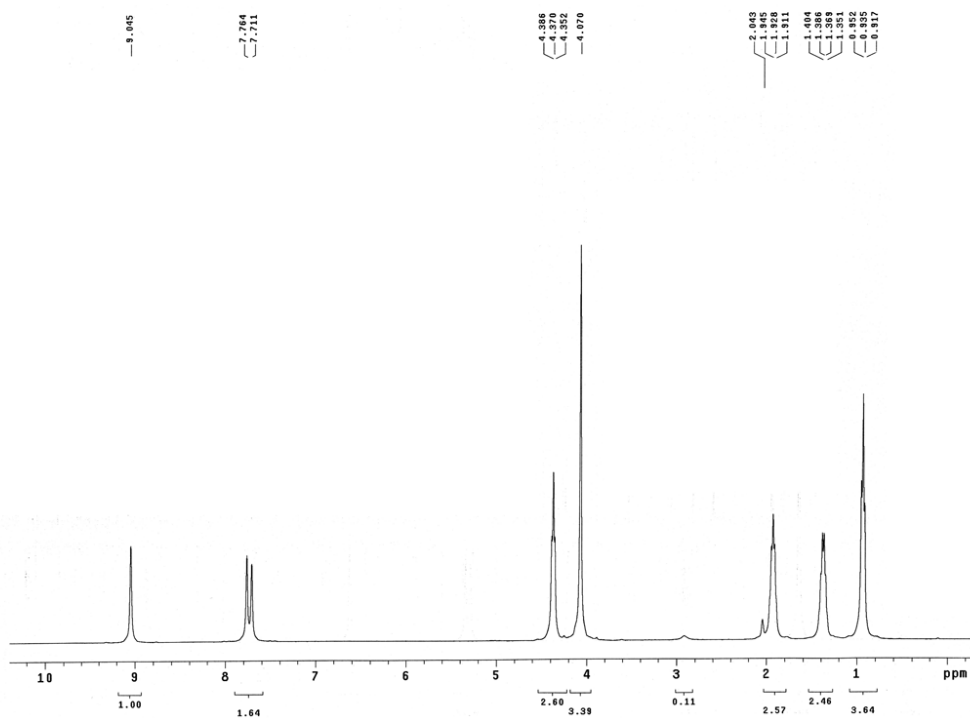


Figure 3. ^1H NMR spectrum of $[\text{bmim}]\text{K}[\text{Co}(\text{CO})_4]_2$ with $[\text{bmim}][\text{Co}(\text{CO})_4]$ residue (in acetone- d_6), the 2.040ppm peak is attributed to the acetone hydrogens.

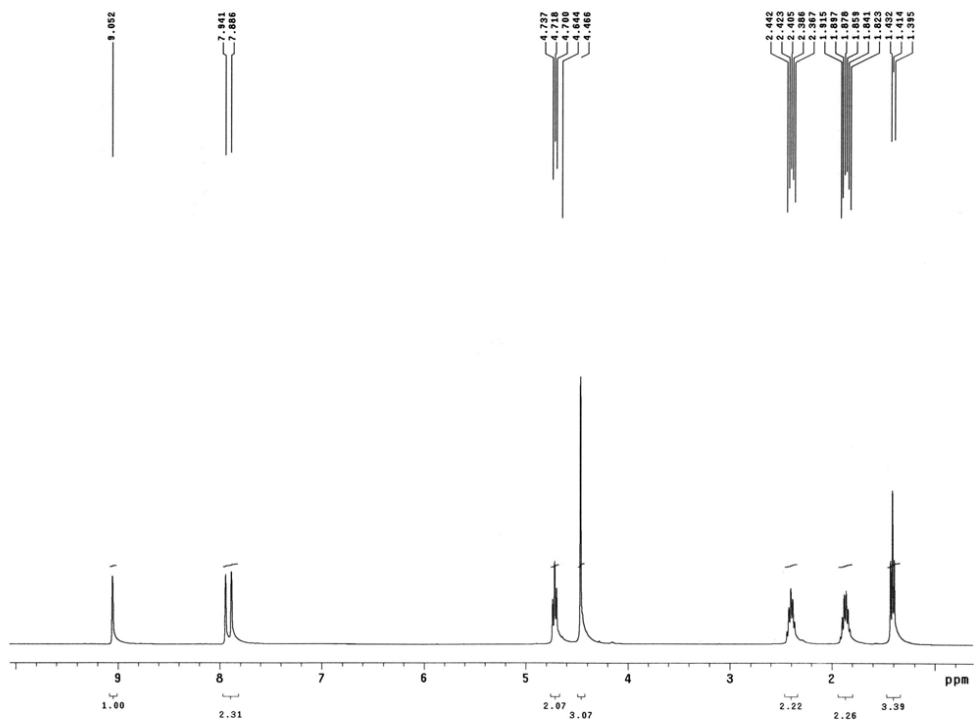


Figure 4. ^1H NMR spectrum of neat $[\text{bmim}][\text{Co}(\text{CO})_4]$ (for comparison)

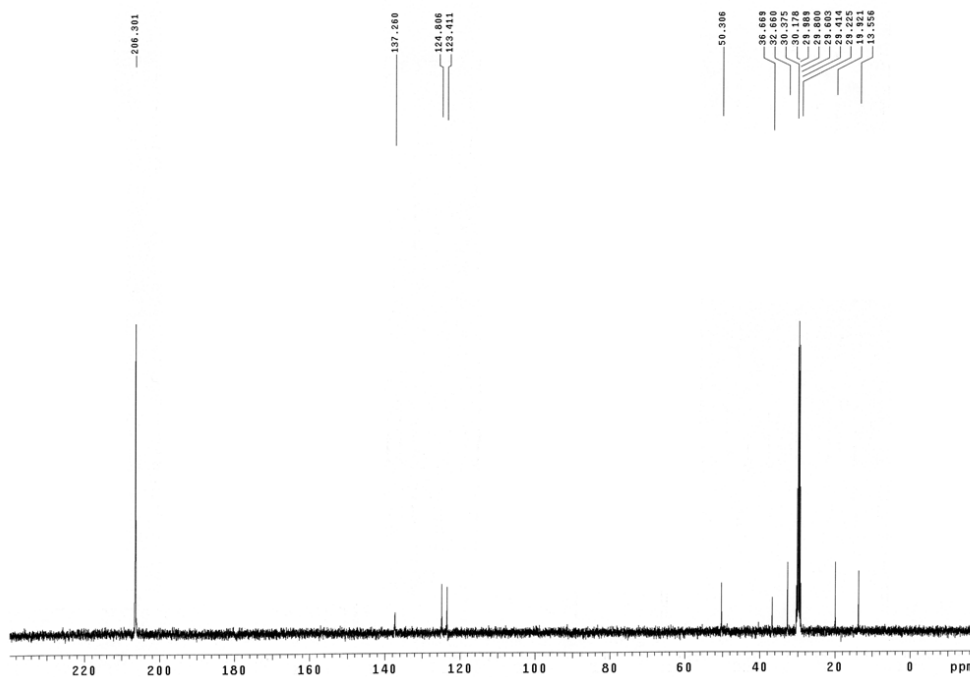


Figure 5. ¹³C NMR spectrum of [bmim]K[Co(CO)₄]₂ with [bmim][Co(CO)₄] residue (in acetone-d₆), the 206.3 and 29.8ppm peaks are attributed to the acetone carbons.

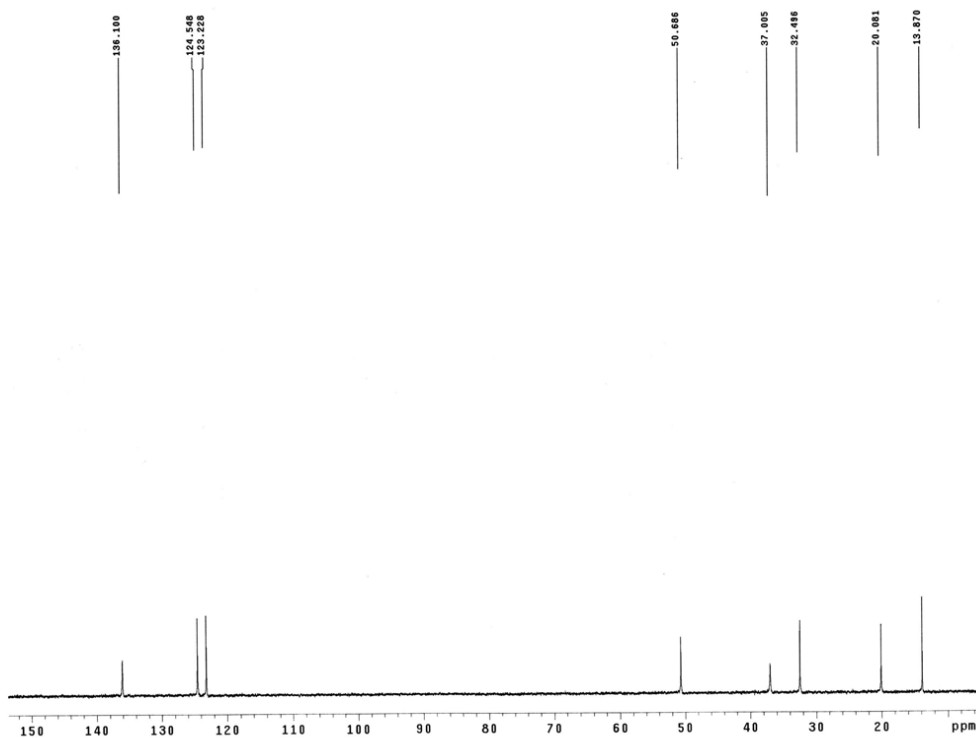


Figure 6. ¹³C NMR spectrum of neat [bmim][Co(CO)₄] (for comparison)