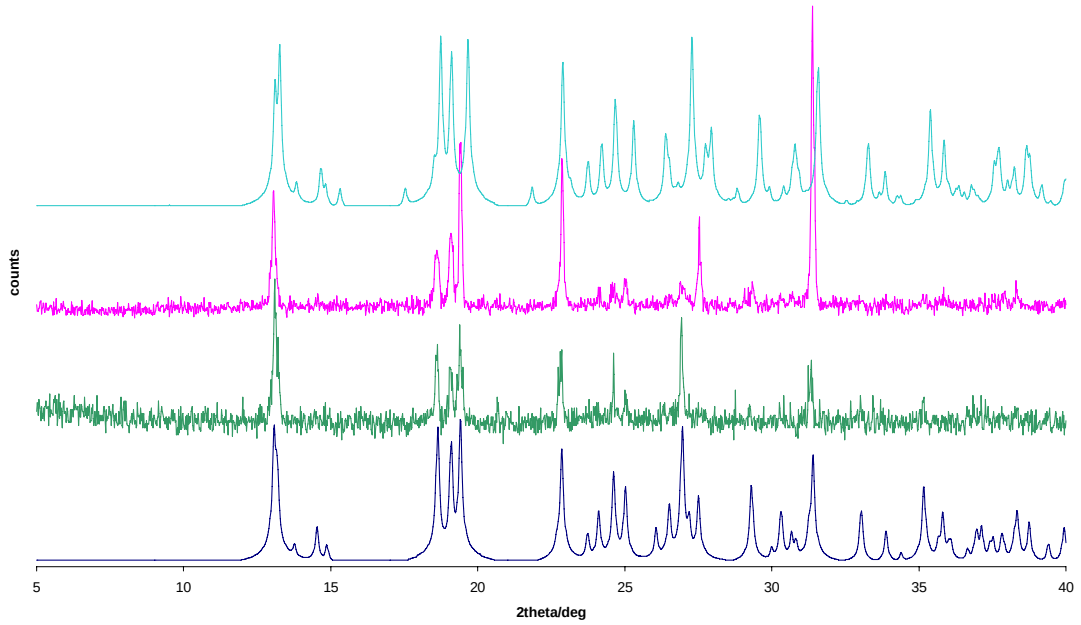
Supporting information

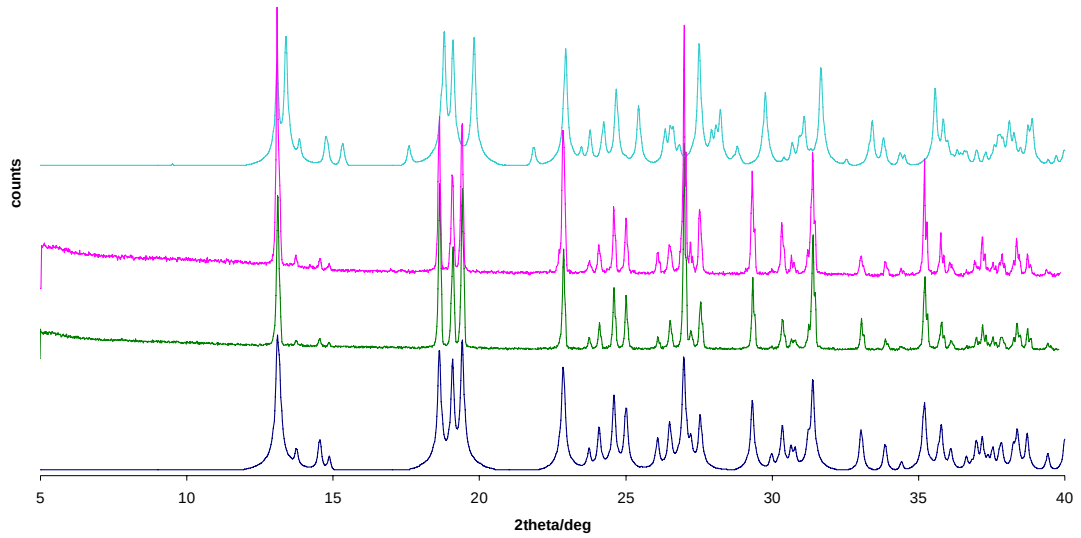
Solid state synthesis of coordination compounds from basic metal salts.

Christopher J. Adams, Mukhtar A. Kurawa, Matteo Lusi, A. Guy Orpen*
School of Chemistry, University of Bristol, Bristol BS8 1TS

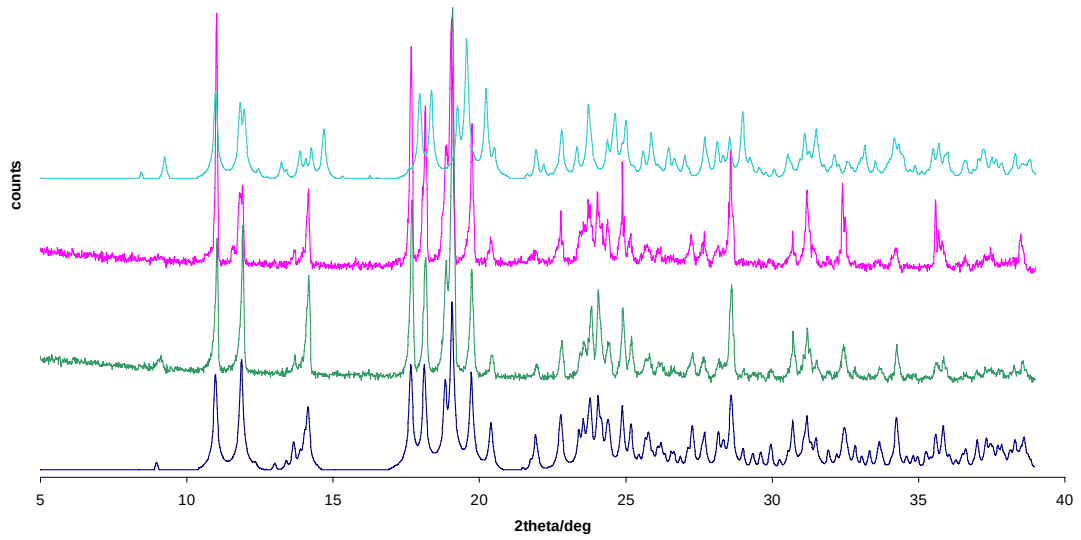
Powder diffraction patterns for **1 - 8**



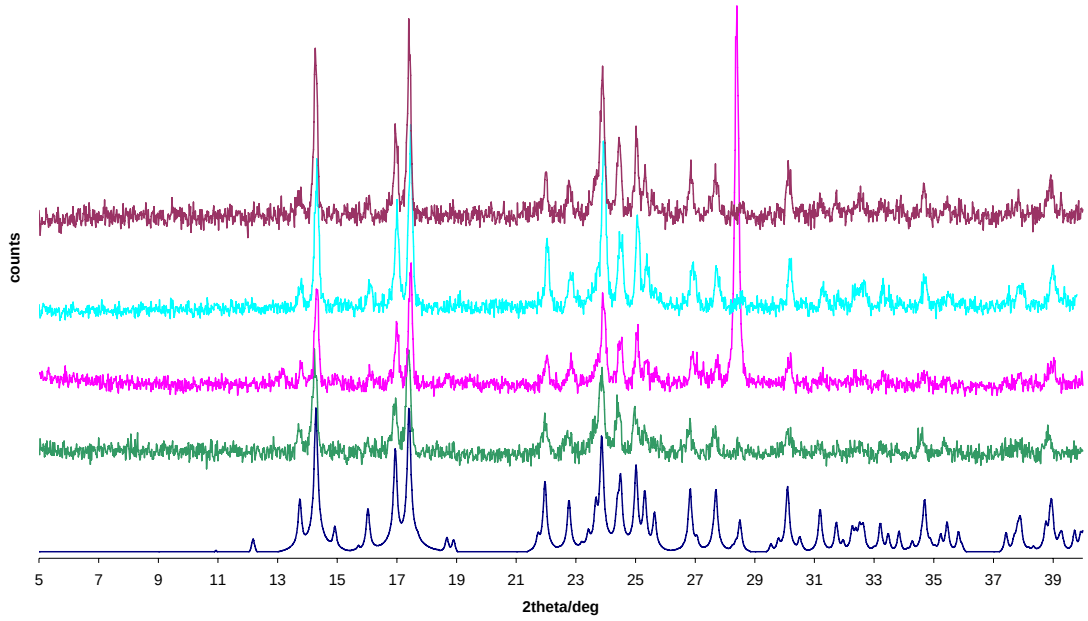
Room temperature XRPD for $[CoCl_4][(H_2im)]_2$ ***1****. blue = calculated from* ***1****(rt); green = mechanochemical; pink = vapour absorption; turquoise = calculated from KAMSOH*[3].



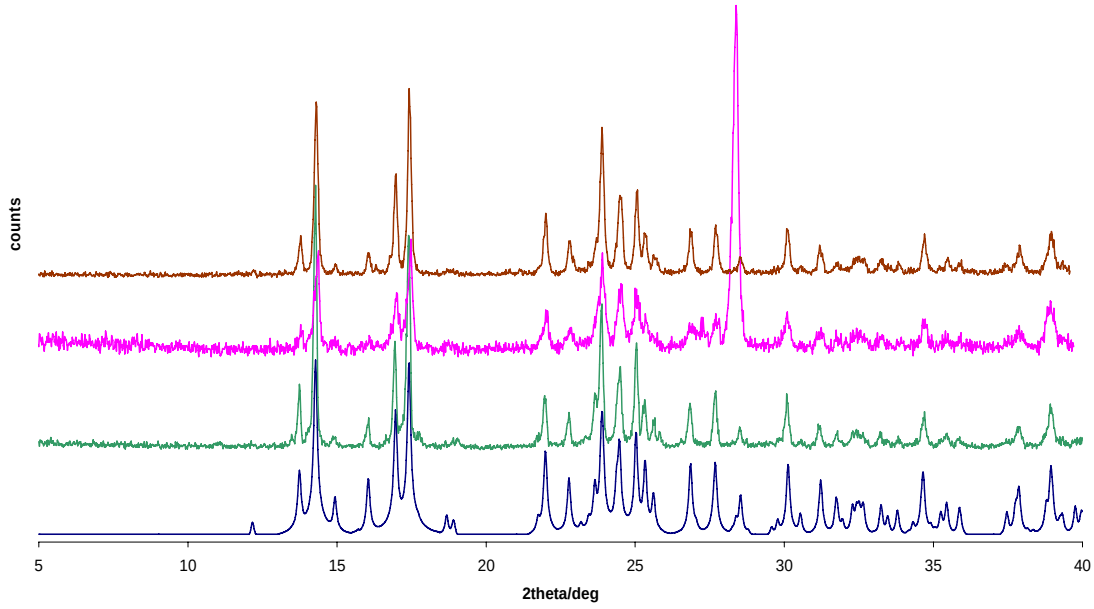
*Room temperature XRPD for $[ZnCl_4][(H_2im]_2$ **2**. blue = calculated from **2**(rt); green = mechanochemical; pink = vapour absorption; turquoise = calculated from 2(LT).*



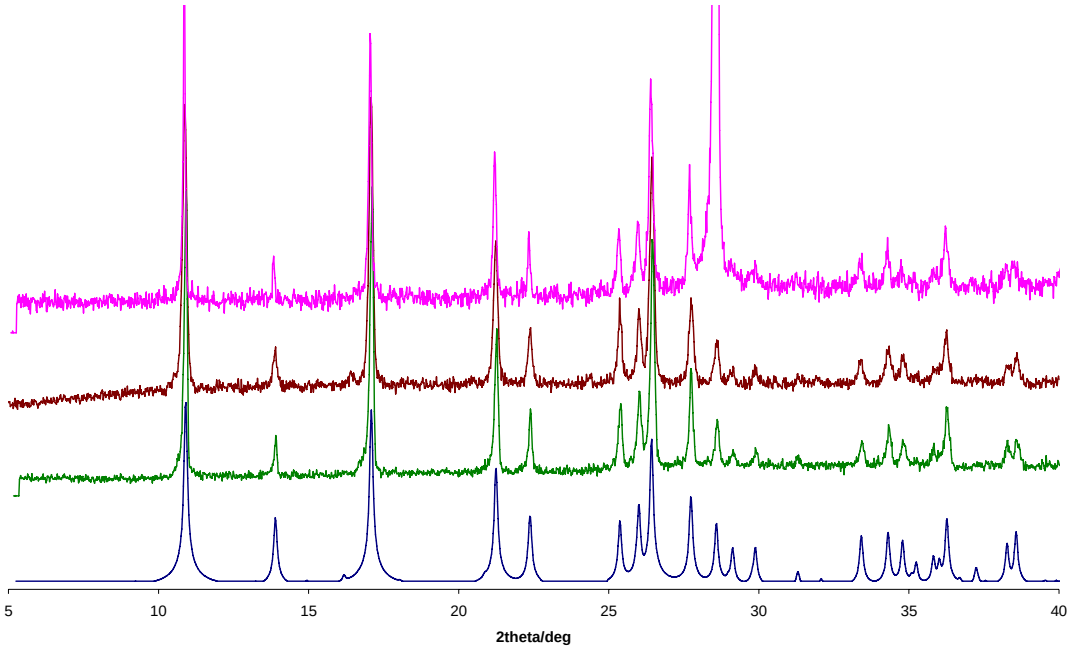
*XRPD for $[CuCl_4][(H_2im]_2$ **3**. blue = calculated from **3**(rt); green = mechanochemical; pink = vapour absorption; turquoise = calculated from 3(LT).*



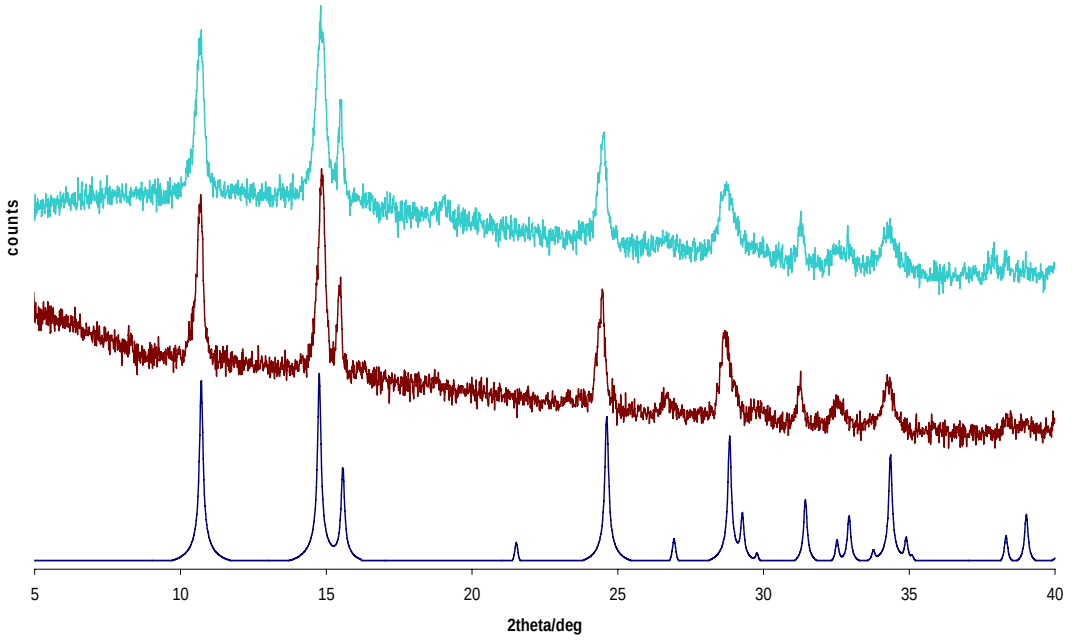
*XRPD for $[Co(Him)_2Cl_2]$ **4**. blue = calculated from DIMZCO; green = mechanochemical; pink = **1** + 2KOH; turquoise = H_2imCl + $Co(OH)_2$; brown = H_2imCl + $CoCO_3$.*



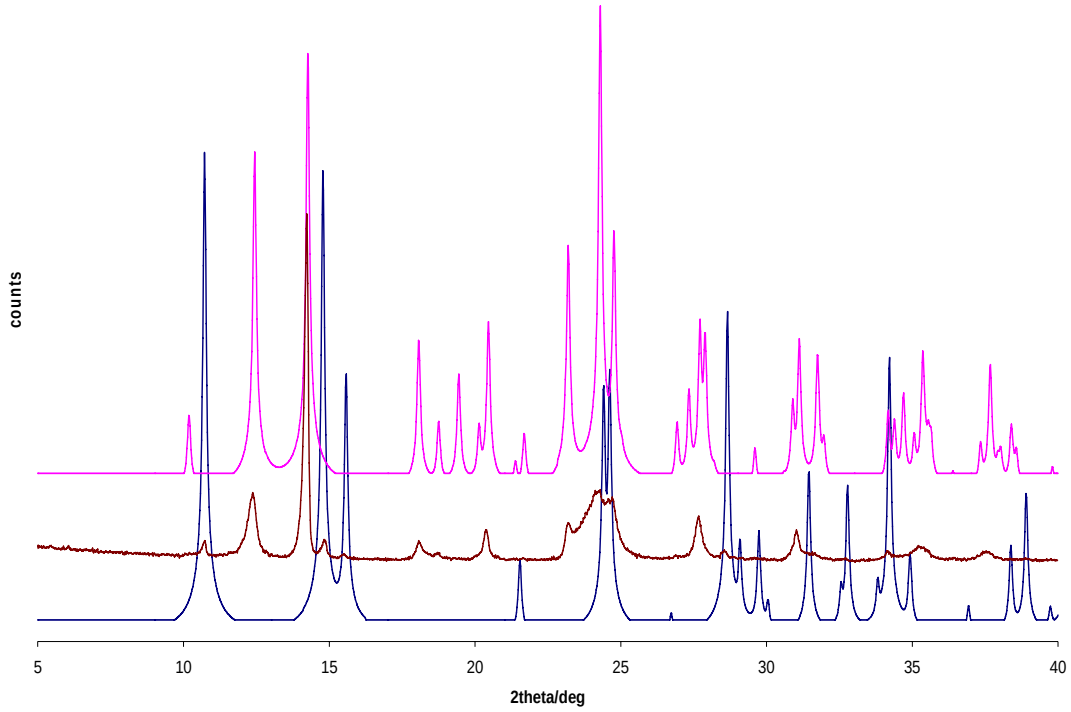
*XRPD for $[Zn(Him)_2Cl_2]$ **5**. blue = calculated from ZNCIMA; green = mechanochemical; pink = **2** + 2KOH; brown = H_2imCl + $3Zn(OH)_2{\cdot}2ZnCO_3$.*



XRPD for [{Cu(Him)$_2$Cl$_2$}$_n$] ***6****. blue = calculated from DIMZCU; green = mechanochemical; brown = H$_2$imCl + Cu(OH)$_2$·CuCO$_3$; pink =* ***3*** *+ 2KOH.*



XRPD for [{CoCl$_2$(4,4'-bipy)}$_n$] ***7****. blue = calculated for* ***7****; turquoise = [4,4'-H$_2$bipy]Cl$_2$ + Co(OH)$_2$; brown = [4,4'-H$_2$bipy]Cl$_2$ + CoCO$_3$.*



*XRPD for [{$ZnCl_2$(4,4'-bipy)}$_n$] **8**. blue = calculated for **8** (Pban (LT)); pink = calculated for **8** (Pnma (RT)); brown = observed for **8** from [4,4'-H_2bipy]Cl_2 + 3$Zn(OH)_2$·2$ZnCO_3$.*