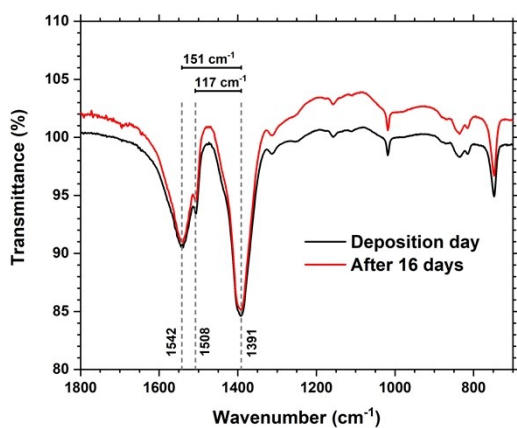
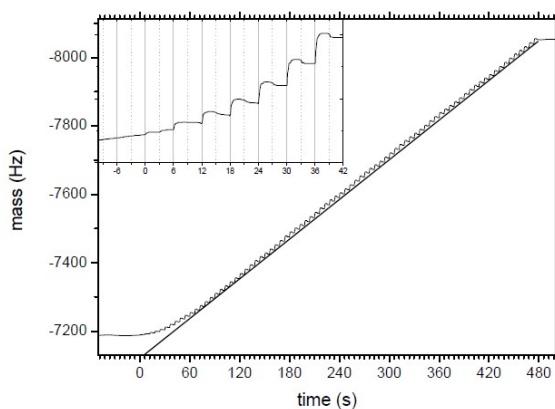


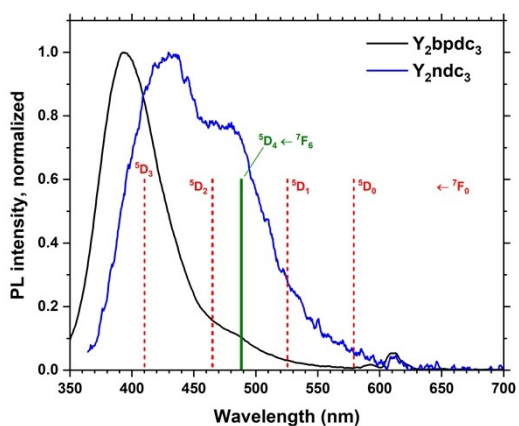
## Supplementary information



Supplementary figure 1: Zoomed in FTIR spectra.



Supplementary figure 2: Detailed view of the first  $\text{Tb}_2\text{bdc}_3$  cycles in a QCM experiment, also showing linear growth after the initial growth.



Supplementary figure 3: Emission from  $\text{bpdC}^{2-}$  and  $\text{ndc}^{2-}$  in  $\text{Y}_2\text{bpdC}_3$  and  $\text{Y}_2\text{ndc}_3$ , and the position of the f-f absorption lines of  $\text{Tb}^{3+}$  (solid line) and  $\text{Eu}^{3+}$  (staple line) stemming from the ground state.

