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## 【224】 Reactivity of $M(\text{CO}_2)(\text{H}_2\text{O})_{n+}$ ; $M=\text{Co}, \text{Mg}$

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Hydrated singly charged metal ions doped with carbon dioxide,  $M(\text{CO}_2)(\text{H}_2\text{O})_n^+$  ( $M = \text{Co}, \text{Mg}$ ;  $n < 50$ ) in the gas phase are valuable model systems for the electrochemical activation of  $\text{CO}_2$ . These systems are studied by Fourier transform ion cyclotron resonance (FT-ICR) mass spectrometry combined with laser spectroscopy. Since mass spectrometry does not yield direct structural information, the presence of an interacting  $\text{CO}_2$  molecule was tested via the exchange against  $\text{O}_2$ . Reaction rate constants  $k_{abs}$  and thermochemical information are extracted from the data in a nanocalorimetric analysis, where average cluster sizes and integrated intensities of reactants and products are modelled with differential equations. Furthermore, absorption spectra are measured with the combination of tuneable OPO laser systems.

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