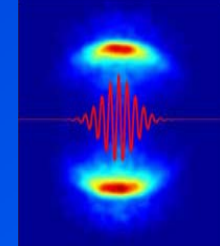
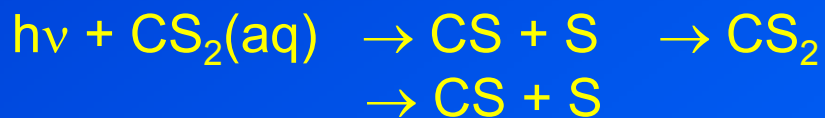
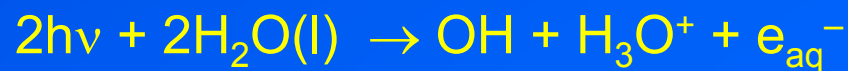
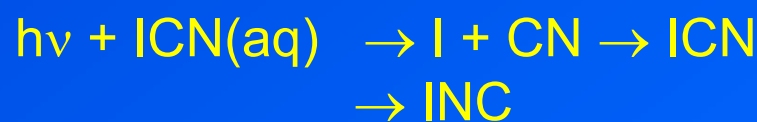
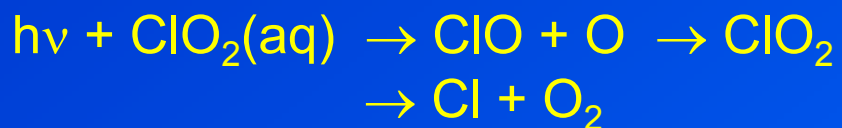




# Towards understanding the photolysis of carboxyl acids



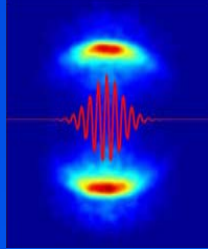
*J. Thøgersen, C. Petersen, S. Knak Jensen, O. Christiansen and S. R. Keiding*  
*Department of Chemistry, University of Aarhus, Denmark*



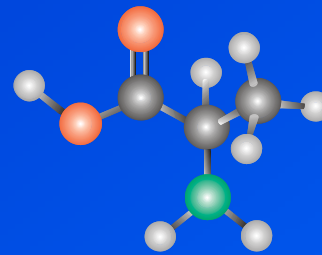
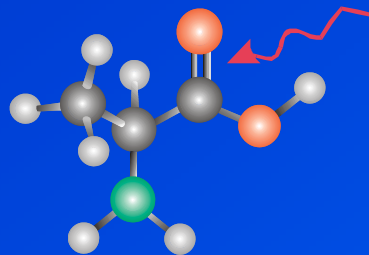
(with Steve Bradforth and Amy Moskun)



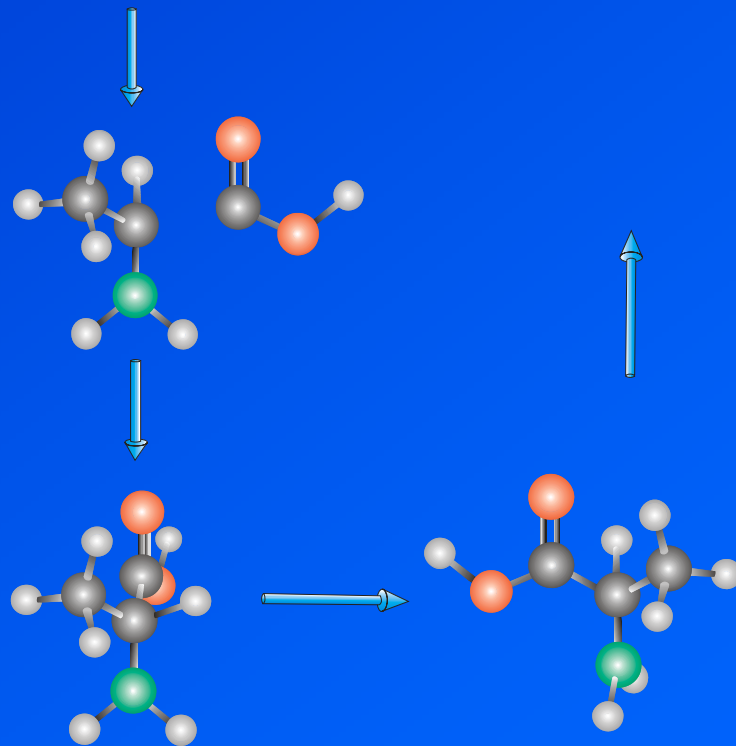
# Photolysis of simple amino acids - the origin of homo-chirality ?



L-Alanine

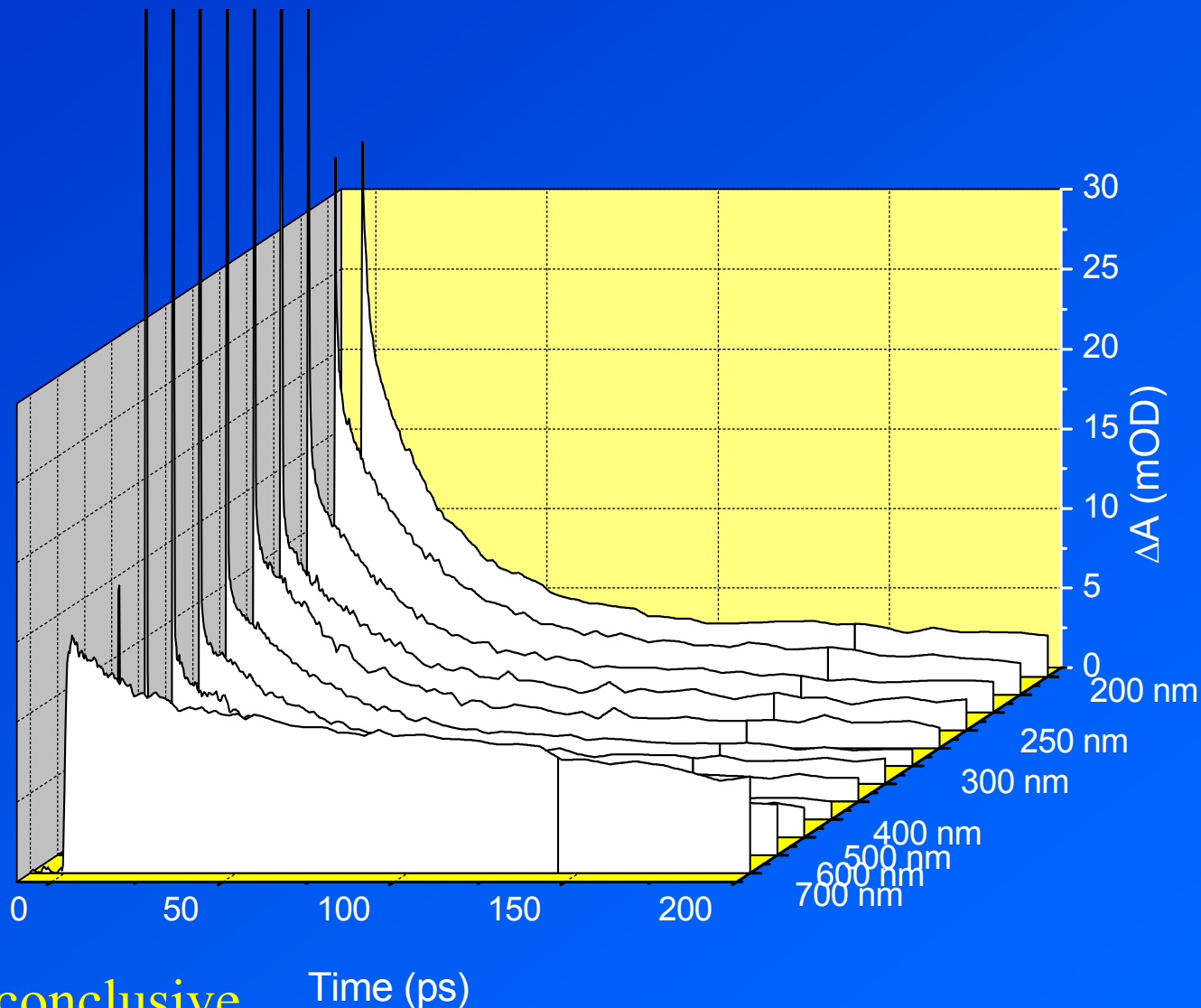
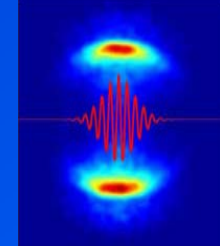


D-Alanine





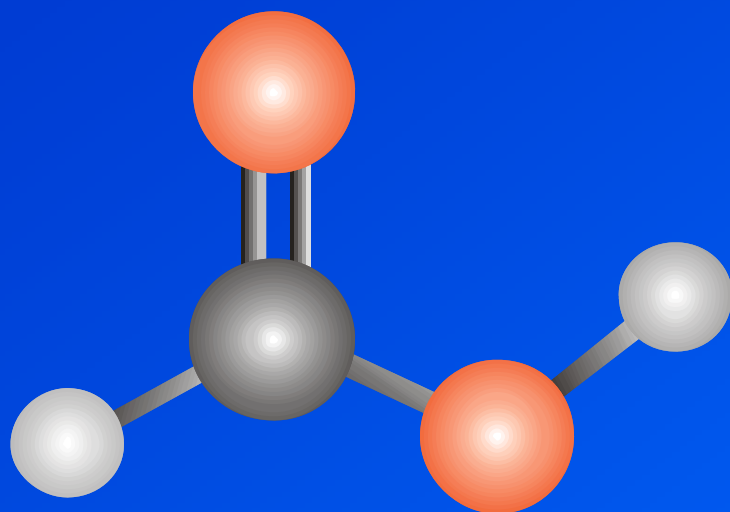
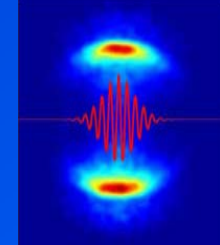
# Excitation of the C=O bond in alanine at 200 nm



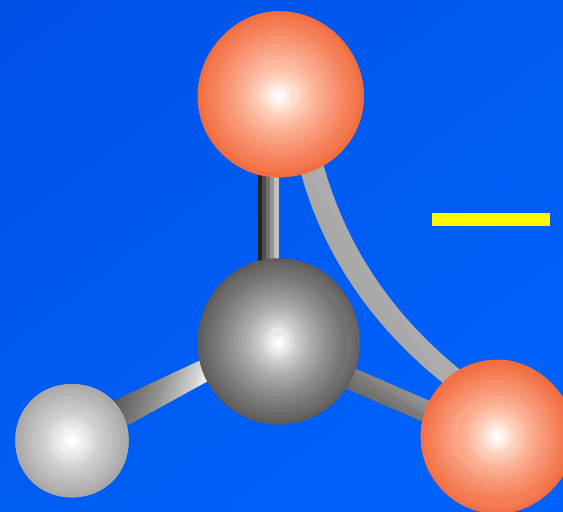
Data are inconclusive



# Excitation of the C=O bond in simple carboxyl acids



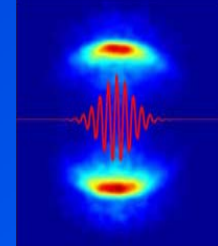
Formic Acid



Formate ion



# Potential dissociation channels of formic acid

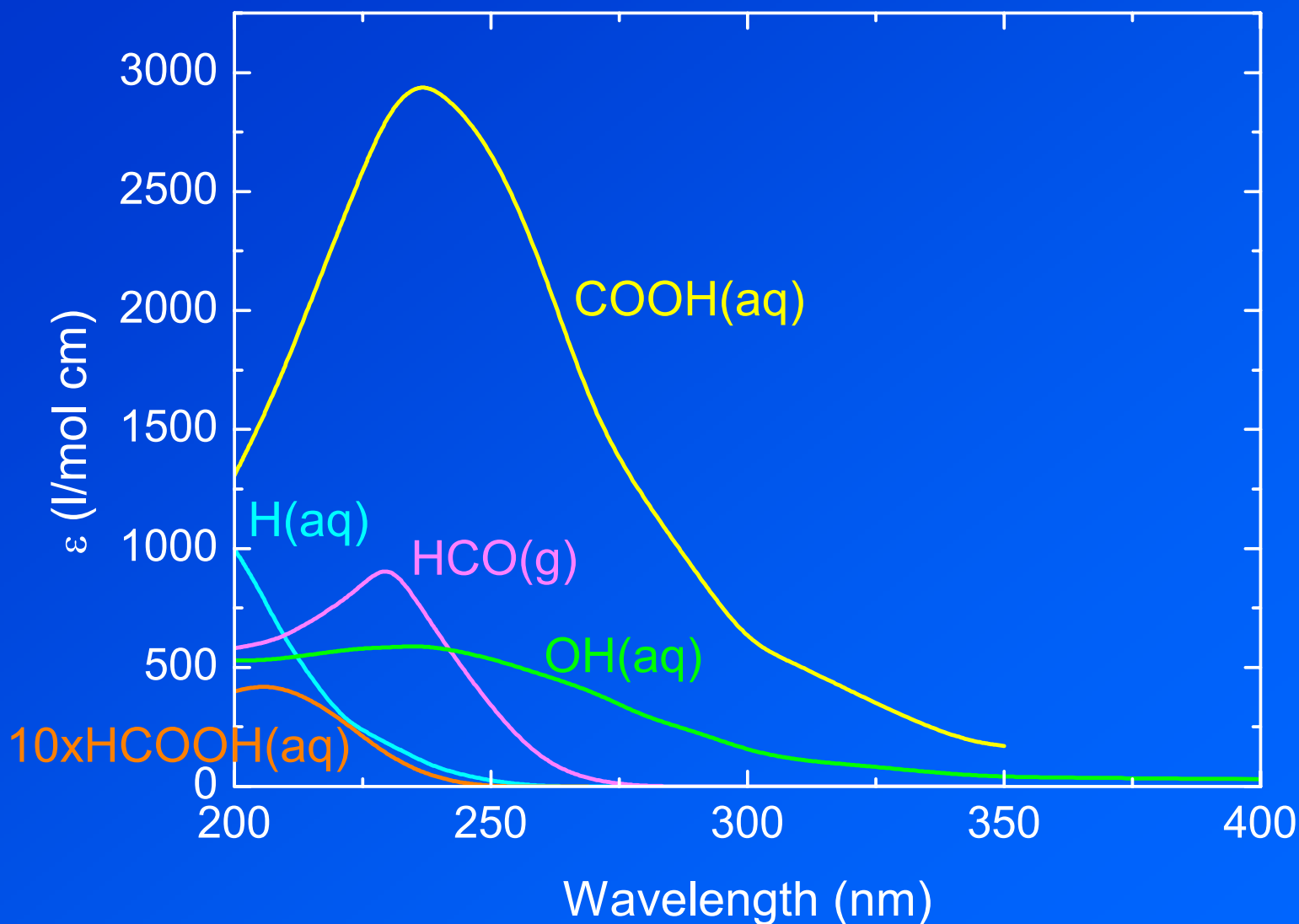
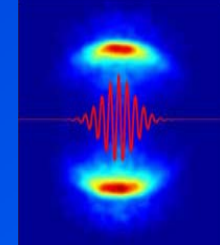


Gas phase:



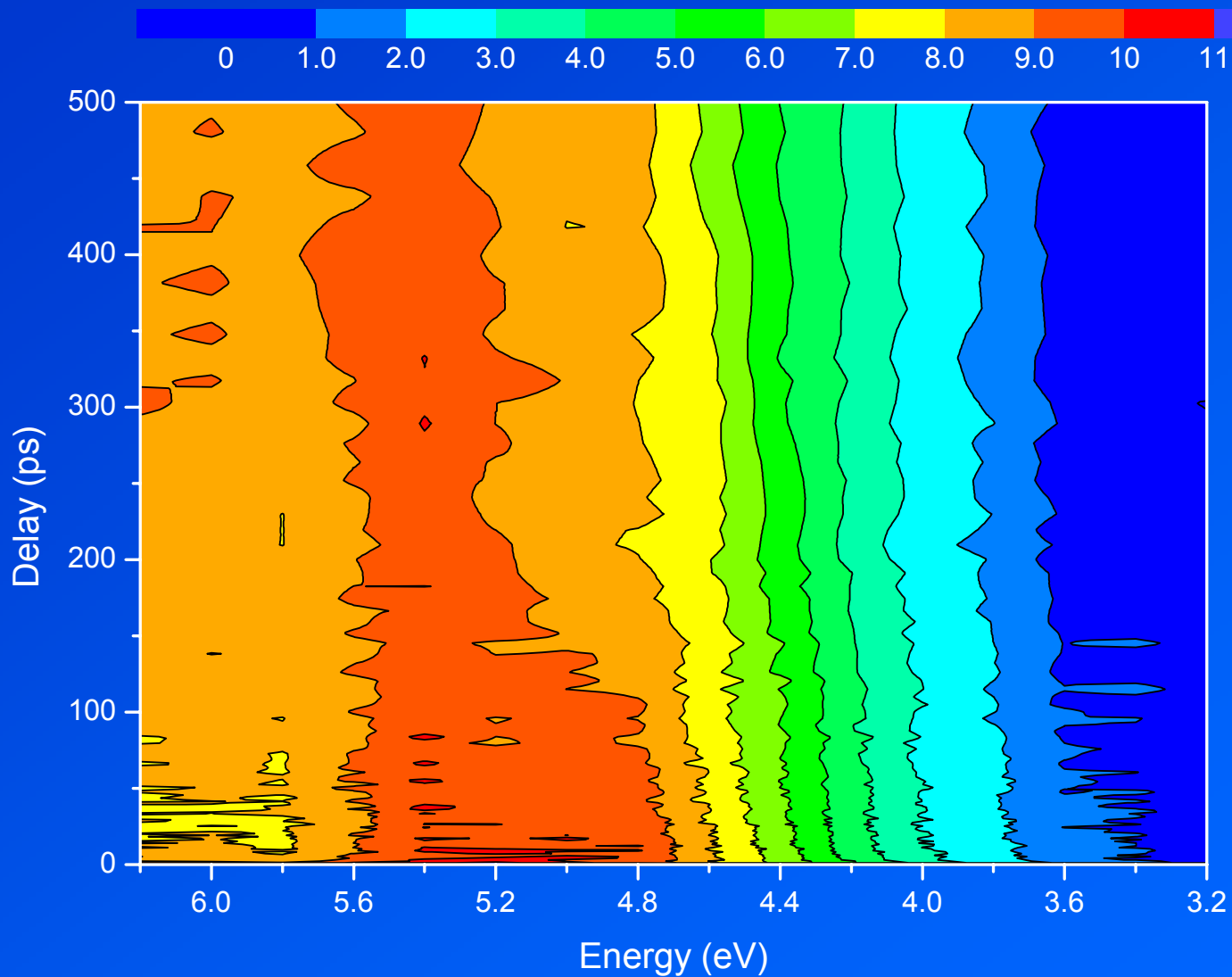
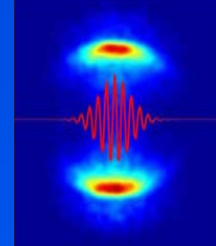


# Absorption spectra of products



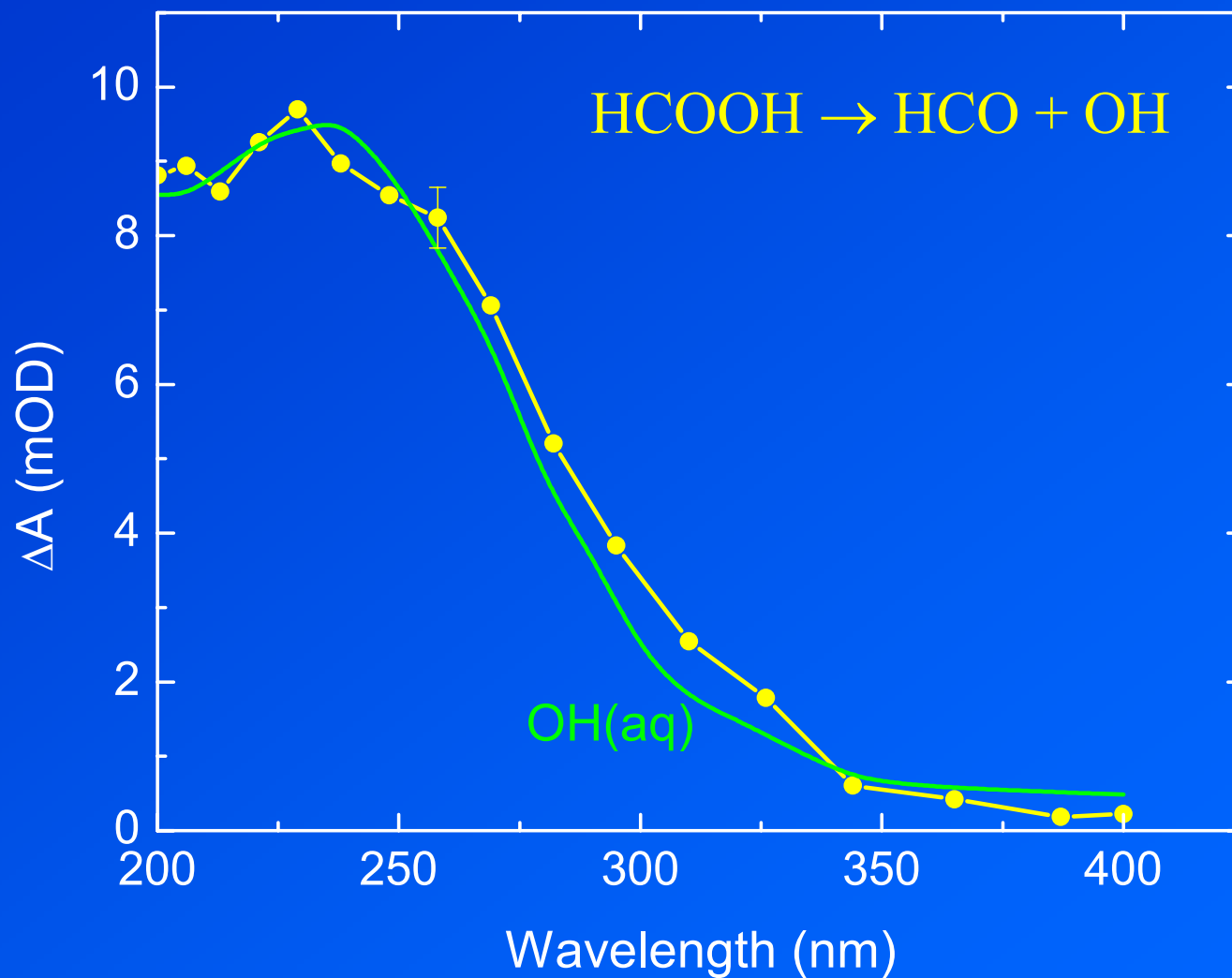
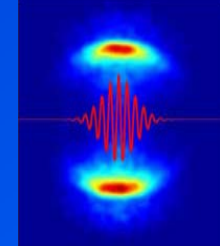


# Transient absorption data





# Transient spectrum after 300 ps

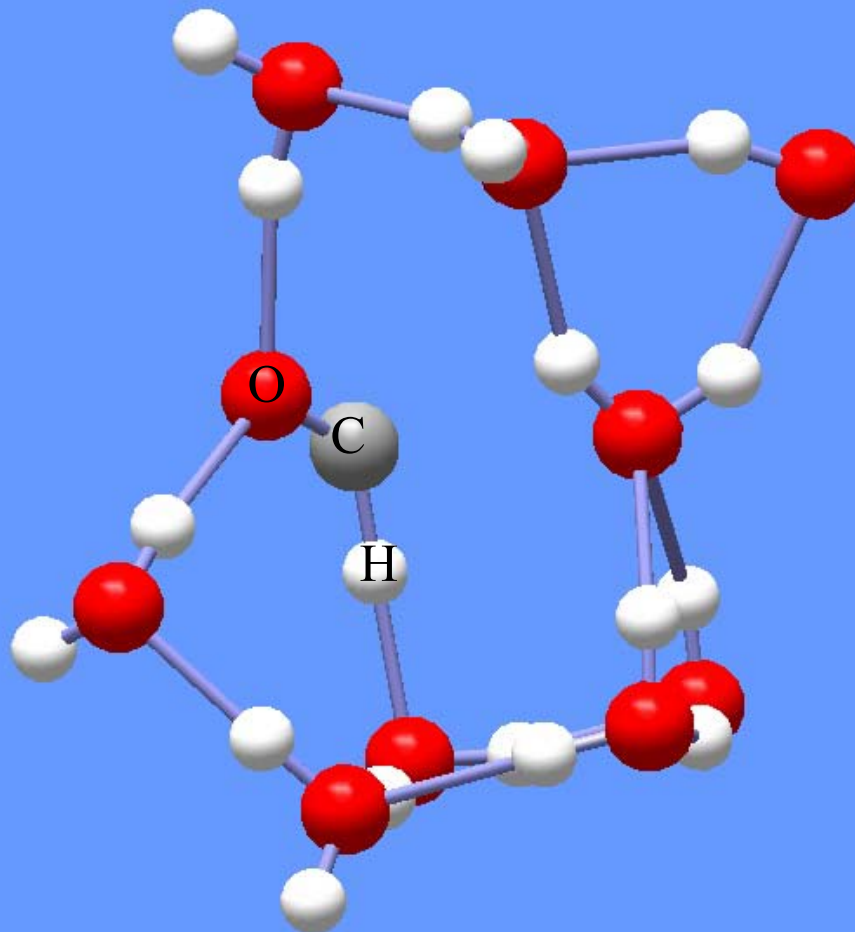
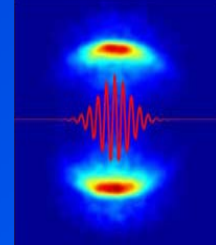






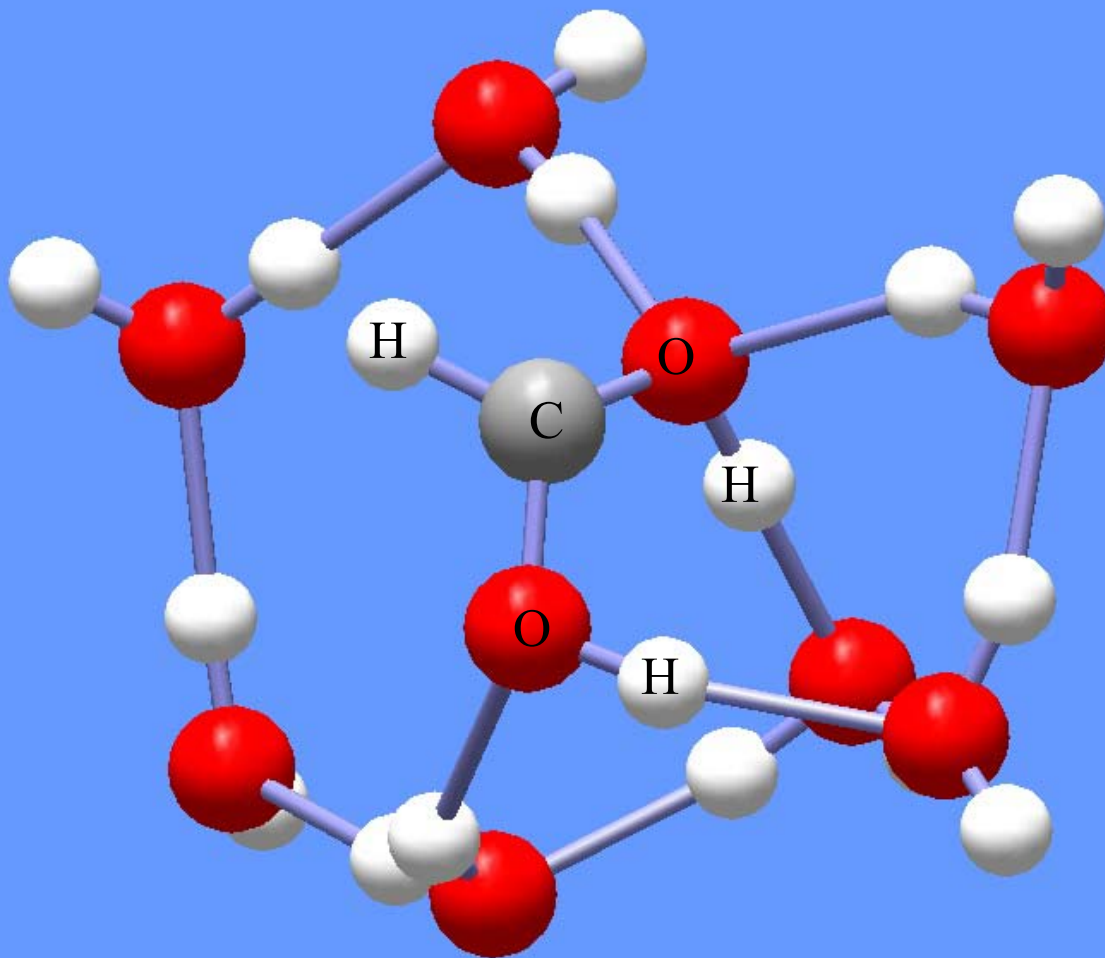
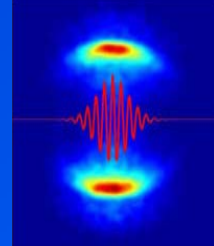
# What happens to HCO ?

Hydrogen bonding results in blueshift



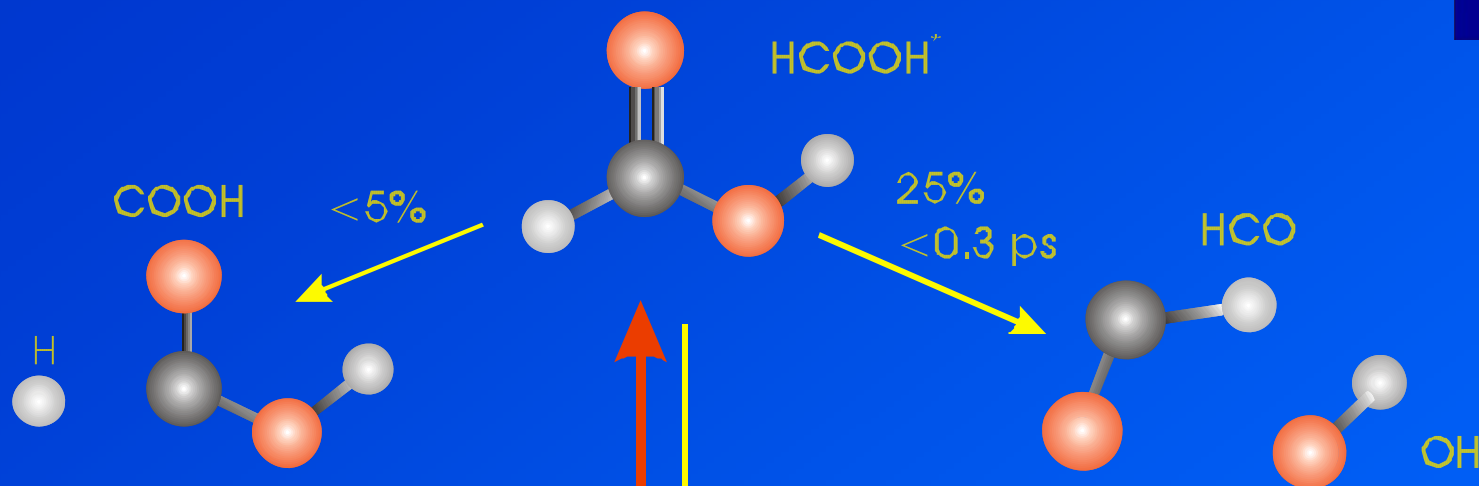
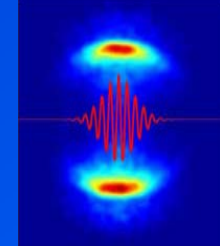


# HCO may react with water to form $\text{HC}(\text{OH})_2$

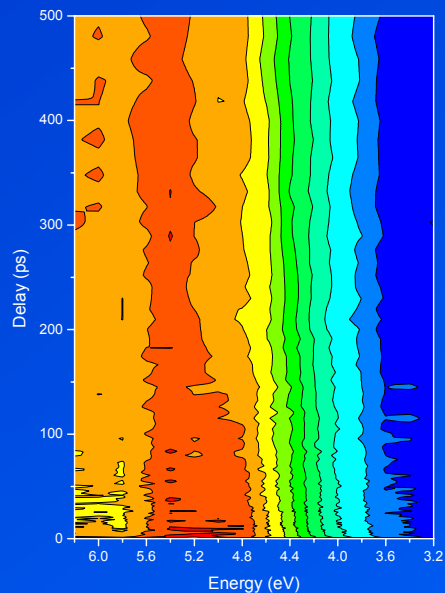




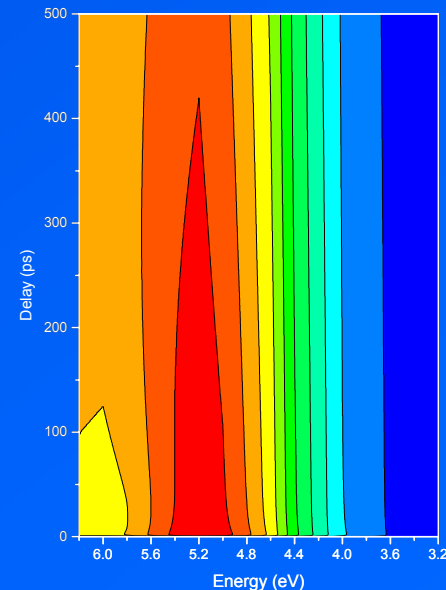
# Current understanding of formic acid



Measurement:

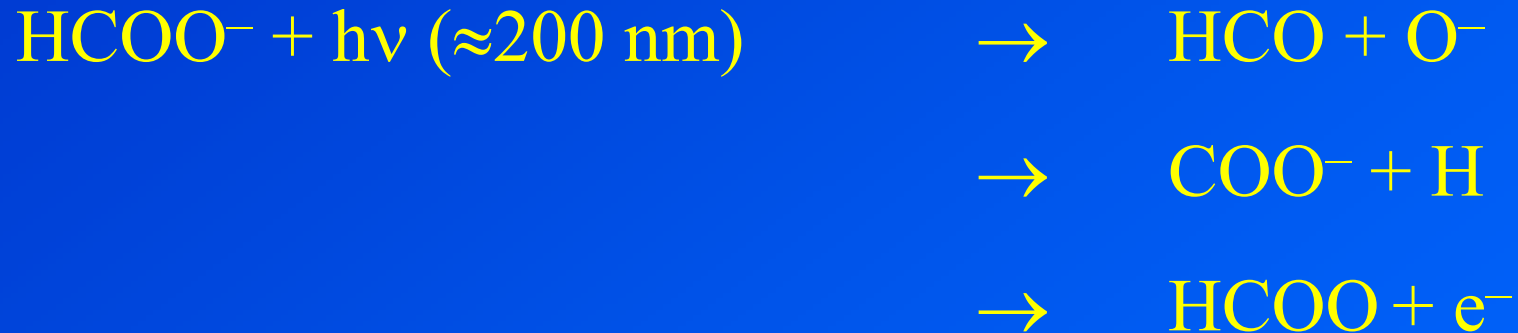
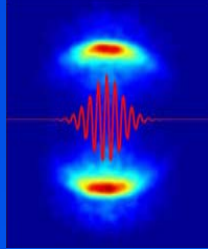


Model:



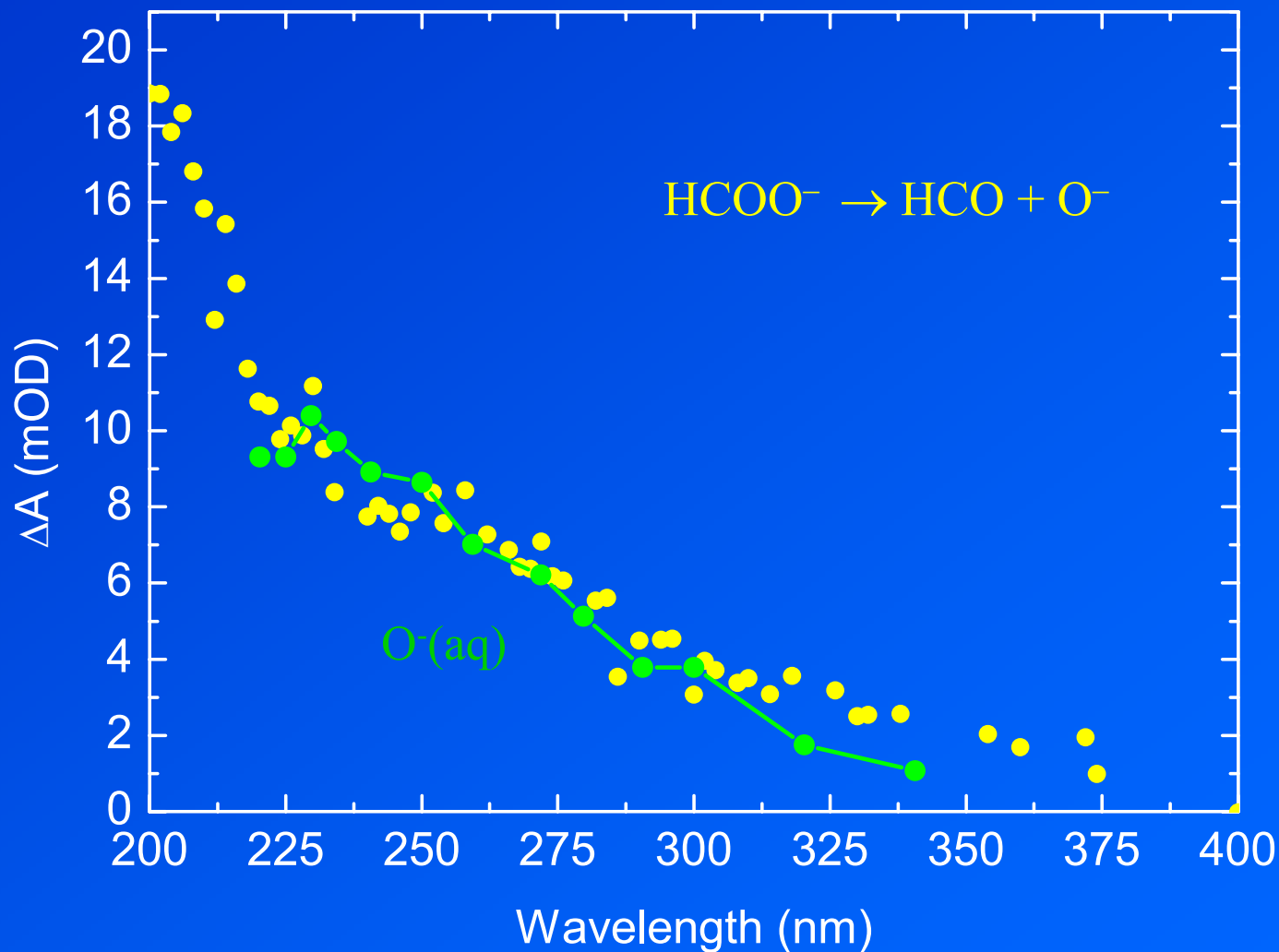
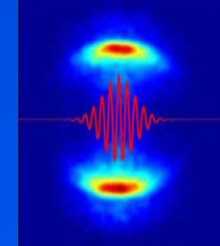


# Photolysis of the aqueous formate ion



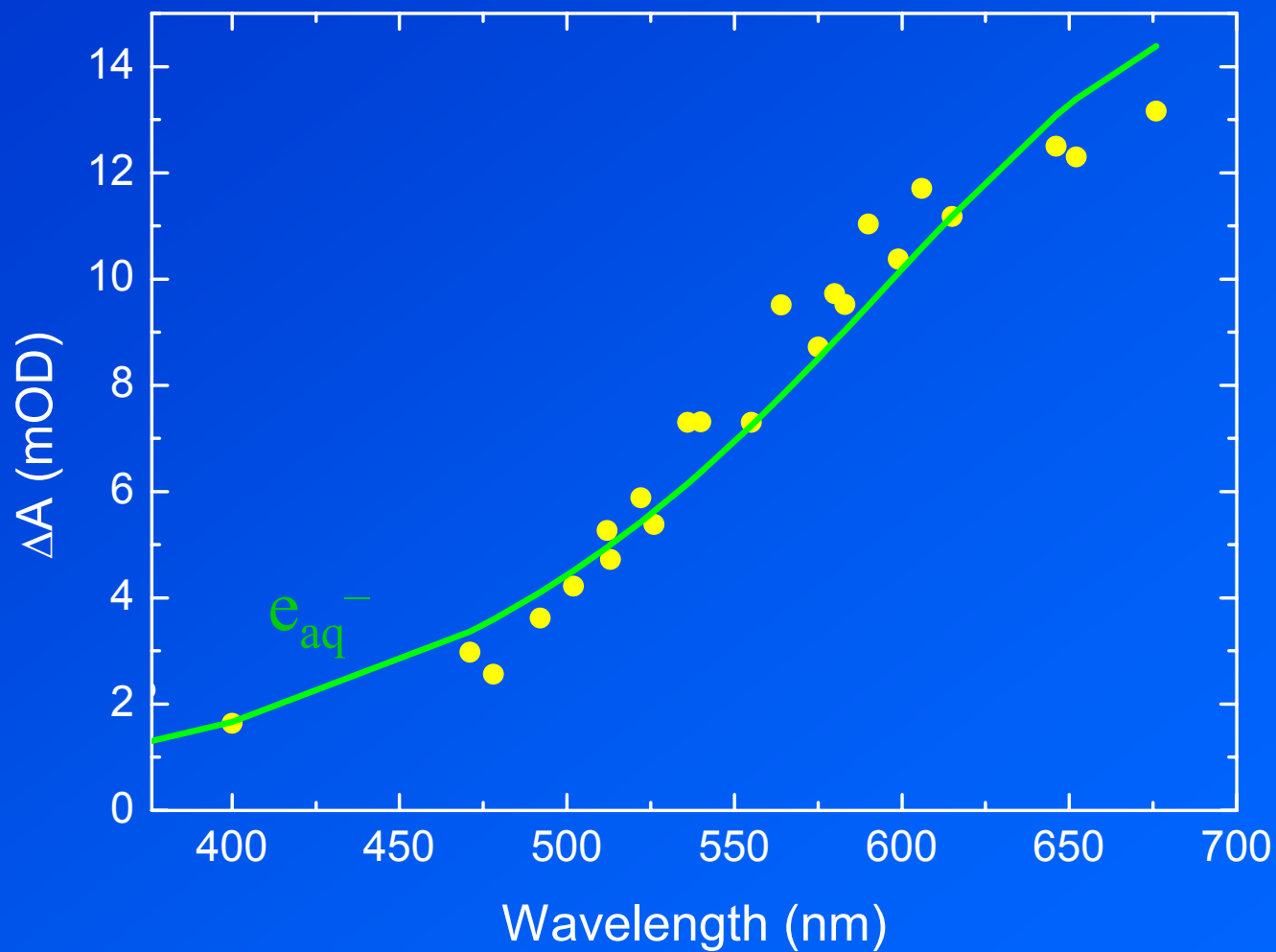
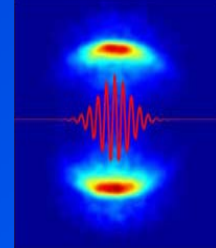


# Transient spectrum after 100 ps



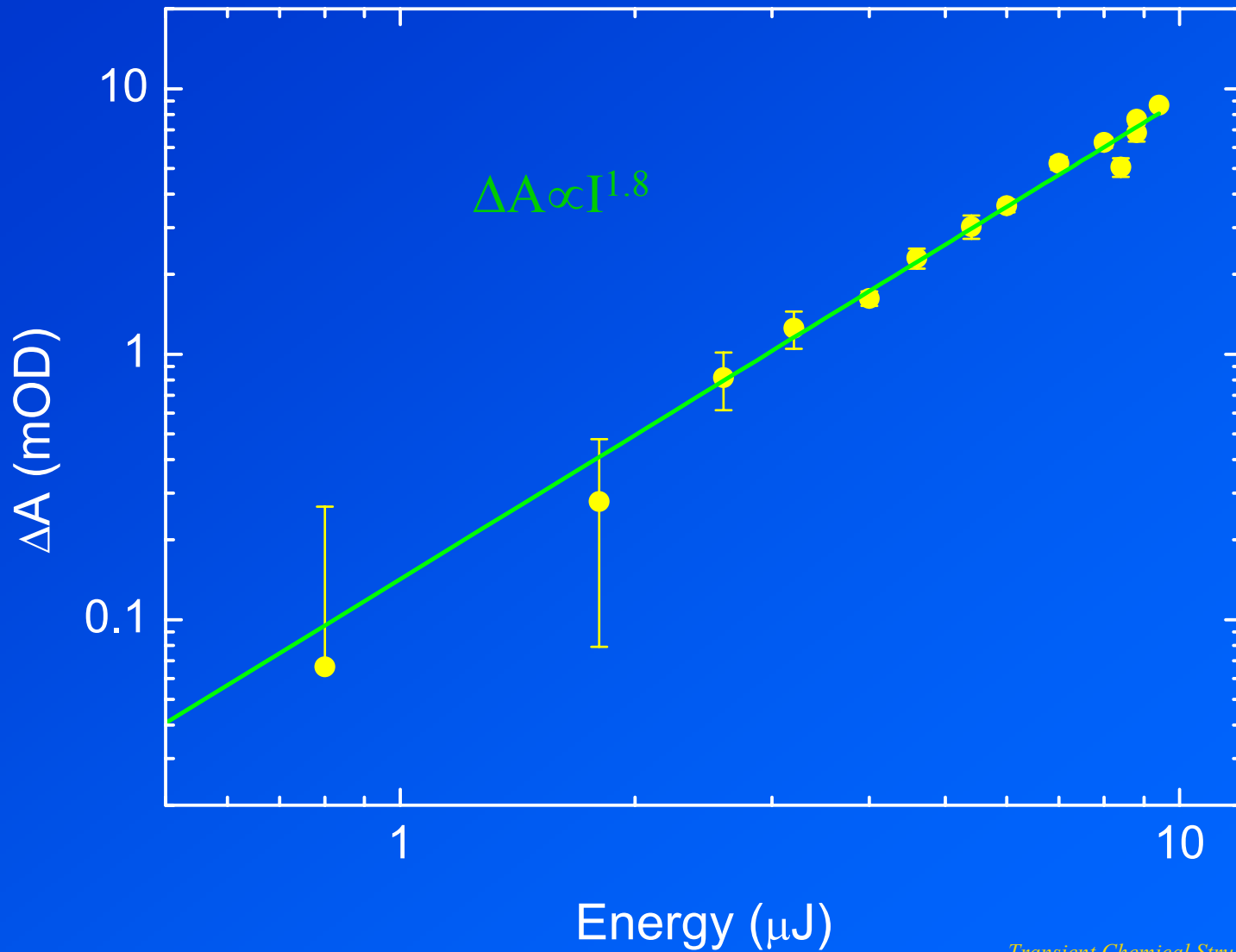
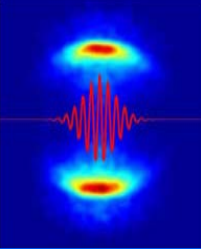


# Transient spectrum after 100 ps



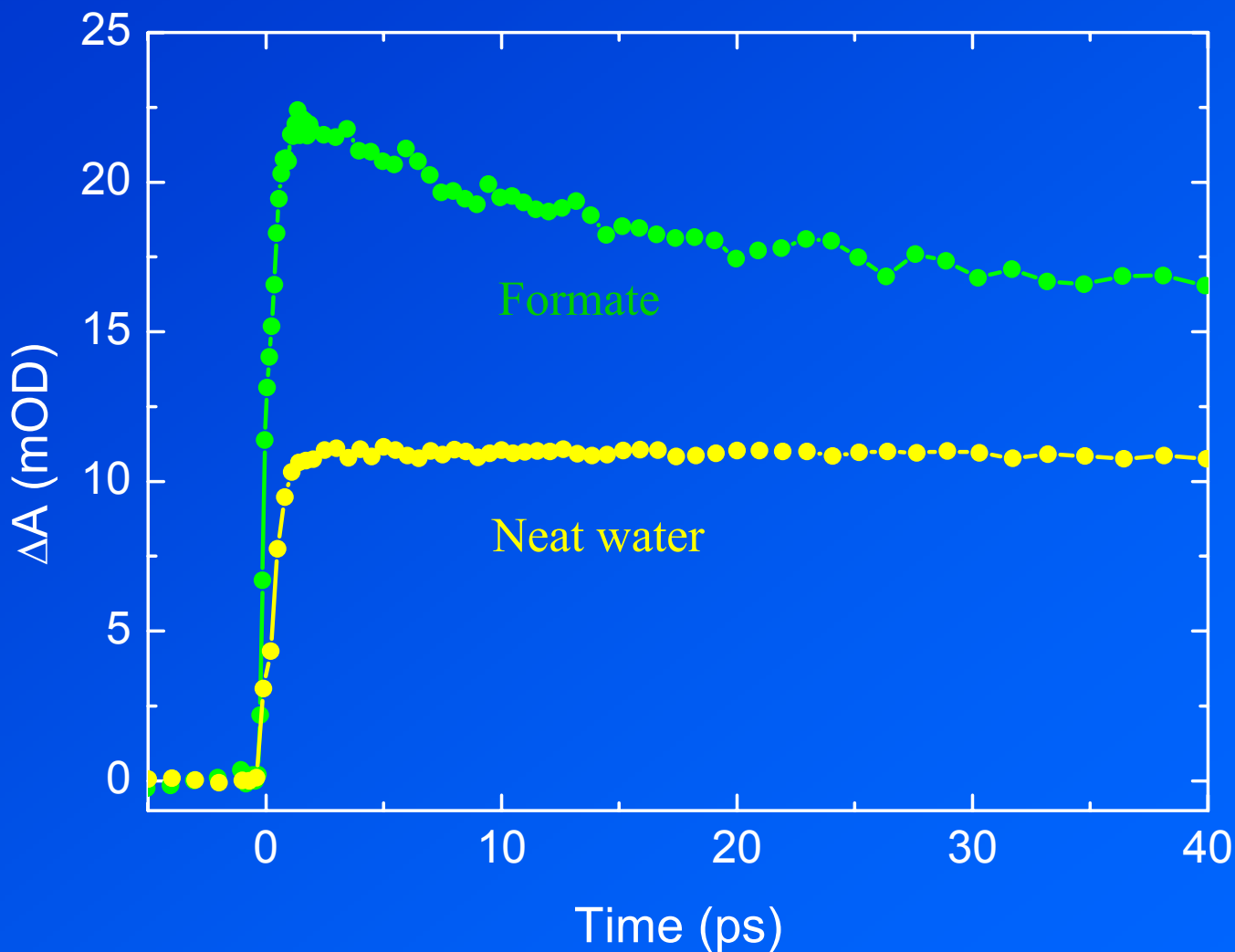
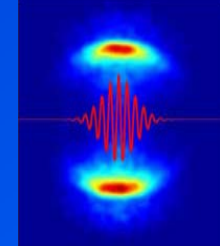


# Intensity dependence of $e_{aq}^-$





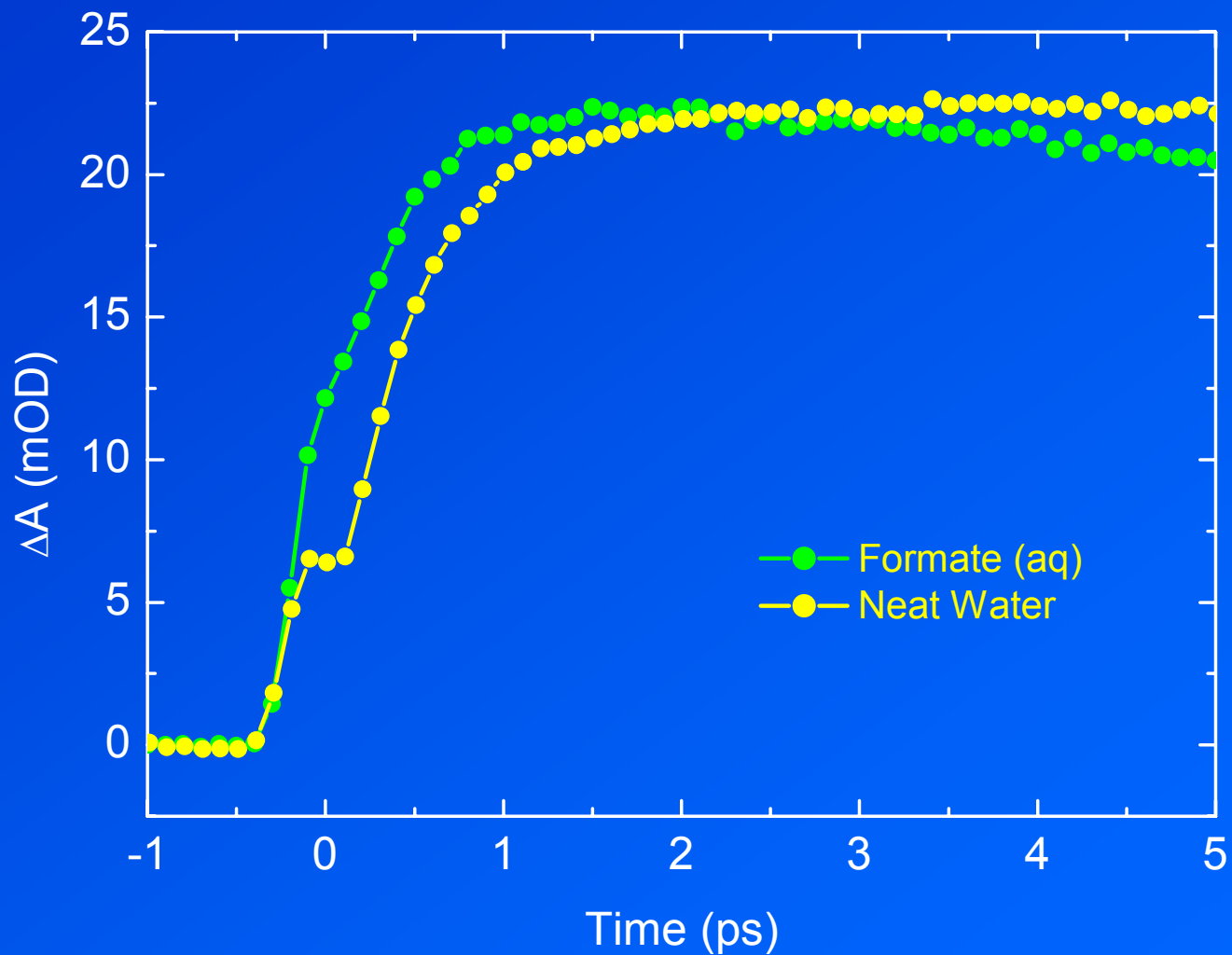
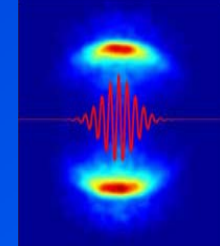
# $e_{aq}^-$ concentration decays faster in aqueous formate





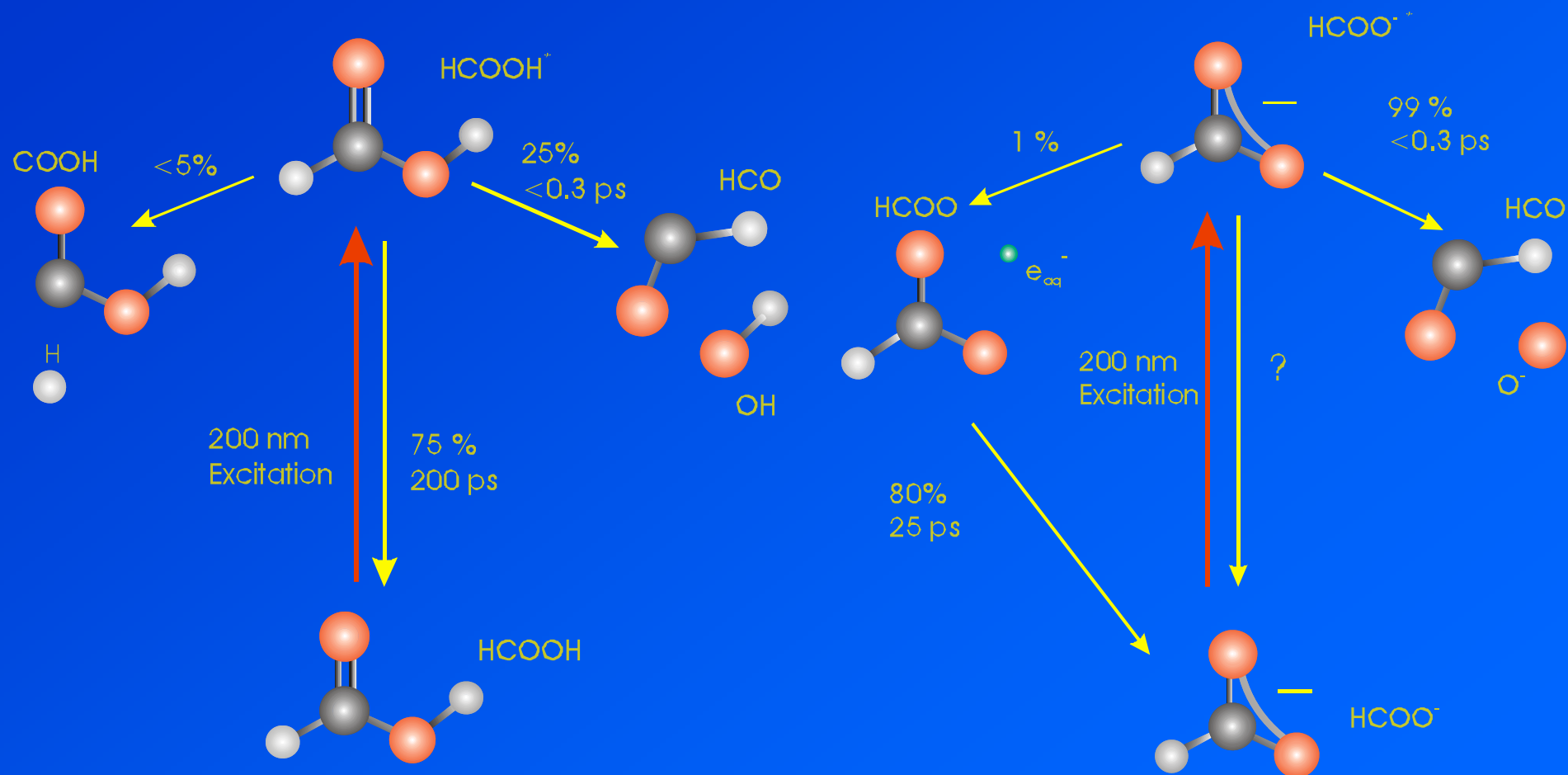
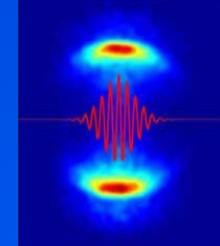


# Faster hydration of detached $e^-$





# Current understanding of formic acid and formate





# What about alanine ?

