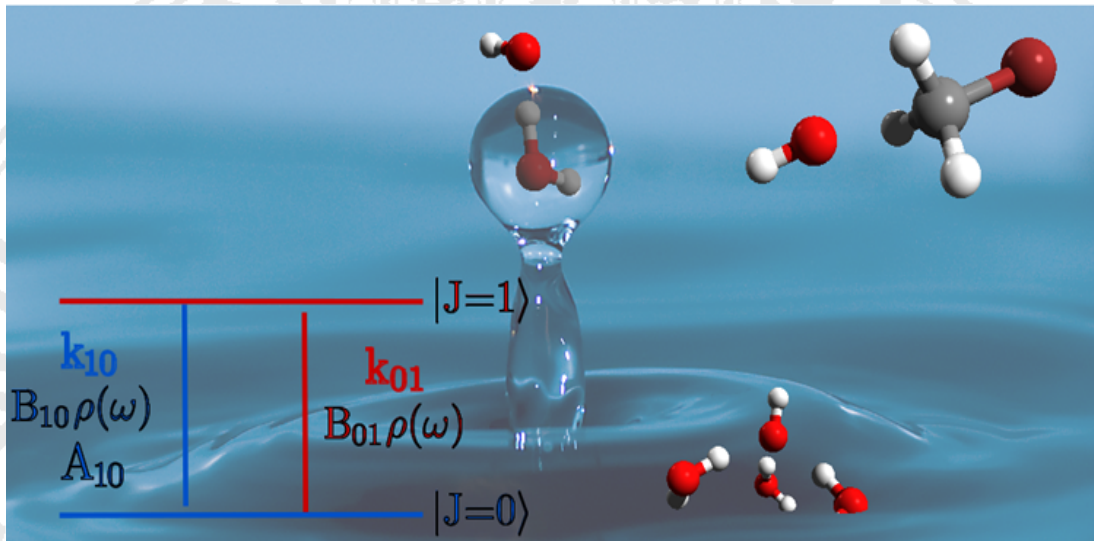


# SONDERKOLLOQUIUM

AM 25. JUNI 2014 UM 15 UHR S.T.

IM HÖRSAAL II IM PHYSIKHOCHHAUS



## Complex molecular interaction: From quantum state control to reactions in solution

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A driving force of my research is the goal to understand molecular collisions and reactions on the fundamental level. Once more than four atoms are involved, it becomes challenging for both experiment and theory to unravel the full quantum dynamics of these interactions. To understand the rich dynamical features that appear in more complex molecular systems, we have developed different experimental techniques that allow to precisely test theoretical descriptions. Our results have also found applications in modelling the cold molecular clouds in the interstellar medium of our galaxy. To illustrate the activities of my group, I will present recent results on the quantum state control in atom-diatom scattering at low temperature, an inherently quantum mechanical scattering process, and on the reaction dynamics of diatomic molecules solvated in small water clusters, an experiment that targets chemical reactions in liquids. I will then show how these experiments promise a new approach to the photophysics of biological dye molecules in gas and liquid phase.