



In the group of Molecular- and Nanophysics ([www.nanophysics.uni-freiburg.de](http://www.nanophysics.uni-freiburg.de))  
we are looking for motivate students for a

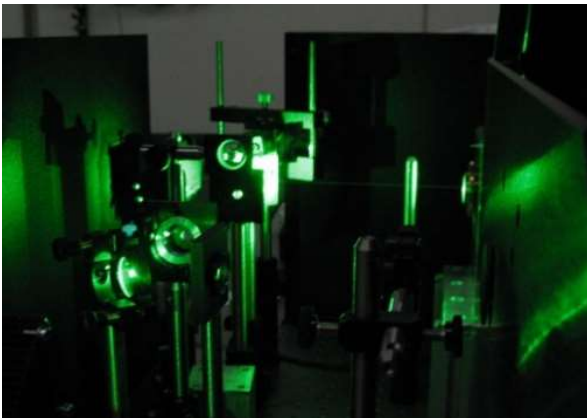


## Bachelor/Master/Teacher Graduate Thesis

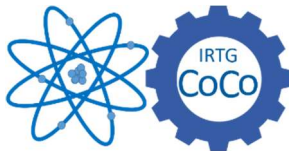
interested in exciting projects in the field of

### High-resolution Molecular Spectroscopy.

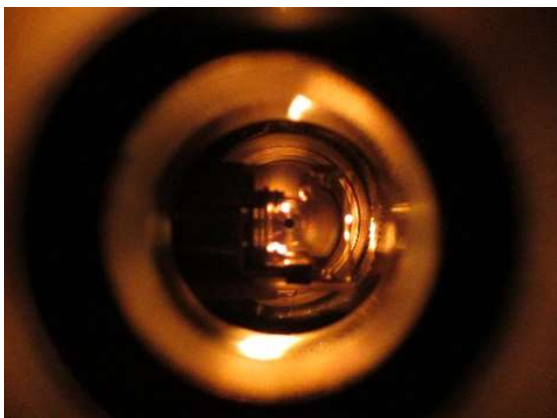
The project aims at investigating the collective excitations in organic molecules attached to rare gas clusters or Helium nanodroplets. Those clusters or droplets serve as a cold substrate for molecules to be attached to. The ensemble of molecules on the surface of the cluster are then excited by nanosecond to femtosecond laser pulses. Quantum dynamical processes like singlet fission (non-radiative energy transfer from one to multiple chromophores) or superradiance (coherent spontaneous emission) are studied. These effects lead to changes of excitation lifetimes and quantum yields, which are crucial parameters in organic photovoltaics and optoelectronic devices. We are investigating those effects by Laser-induced fluorescence spectroscopy, emission spectroscopy and time-correlated single photon counting. In collaboration with theoretical groups the excitation dynamics of these ensembles of organic molecules can be revealed.



We are looking for applicants, who are highly motivated to work in Experimental Molecular Physics. Joining this project would involve working on high-vacuum setups, ultrafast laser systems, pulsed cluster sources, mass spectrometry, automated data acquisition, signal processing and various detection techniques.



The project is linked to the DFG-funded International Research Training Group (IRTG 2079) "Cold Controlled Ensembles in Physics and Chemistry" (<http://www.irtg-coco.uni-freiburg.de/>)



For further information please contact

**Prof. Frank Stienkemeier**

University of Freiburg - Institute of Physics  
Hermann-Herder-Str. 3, 79104 Freiburg  
Room 501 Physics Highrise

fon +49 761 203-7609

[www.nanophysics.uni-freiburg.de](http://www.nanophysics.uni-freiburg.de)  
[stienkemeier@uni-freiburg.de](mailto:stienkemeier@uni-freiburg.de)