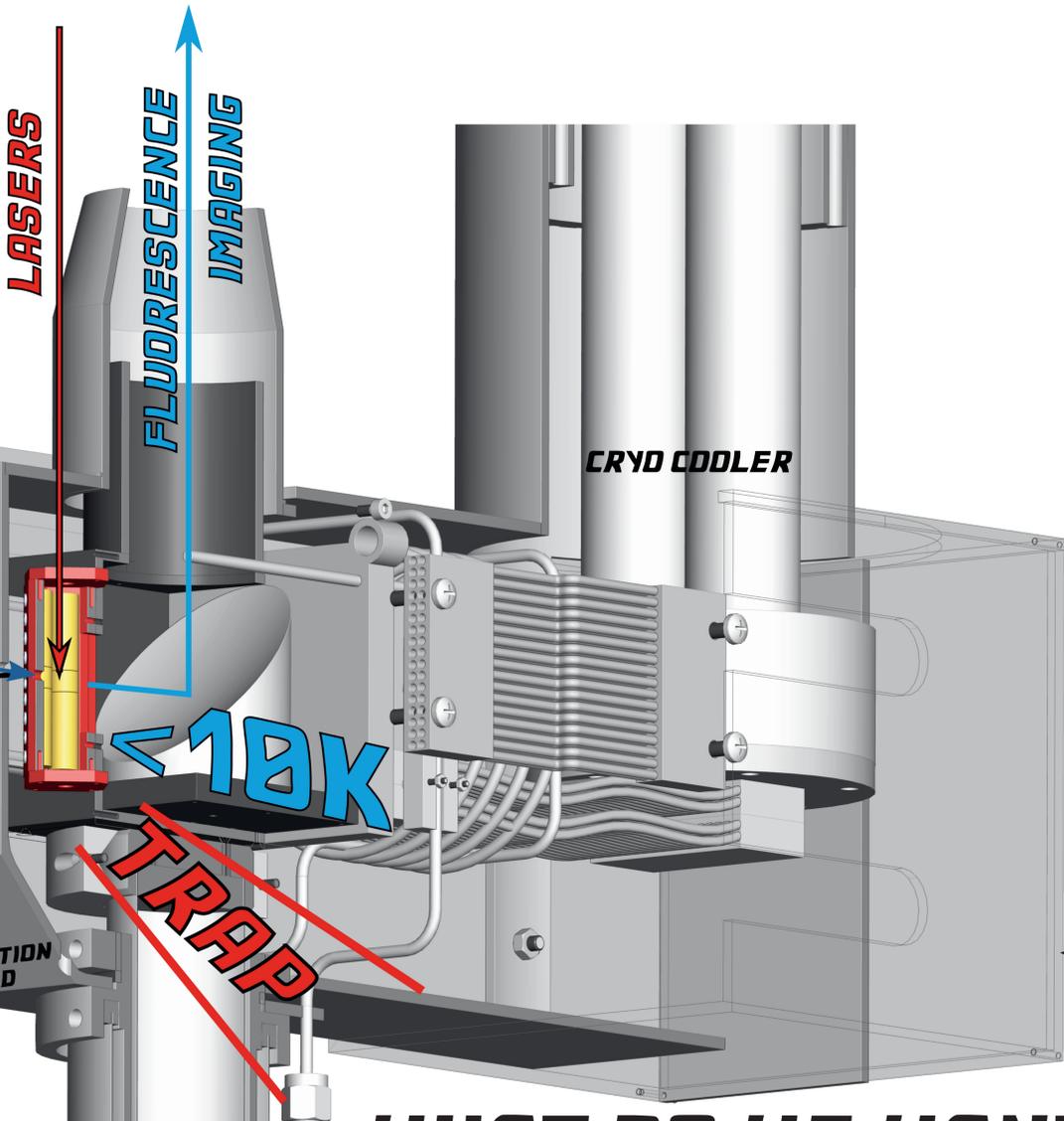


COLD QUANTUM CHEMISTRY FROM M. HEJDUK N. COUGHLAN A. TSIKRITA AND HEAZLEWOOD GROUP



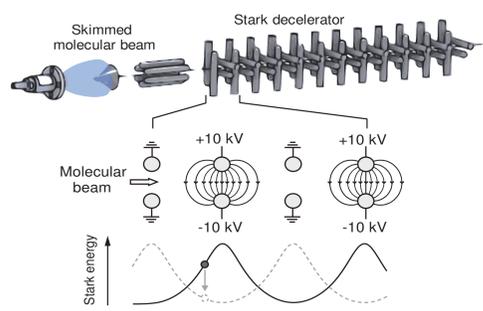
- ### OPERATION INSTRUCTIONS
1. Load calcium ions (by photoionisation).
 2. Cool them down (by LASER)!
 3. Load ions you want.
 4. Cool them down!
 5. Shoot very very slow neutrals.
 6. Watch what happens. Literally! (Watch the fluorescence image.)
 7. Cool the products down! ... if you want.
 8. Mass-analyse the products after a certain time!
 9. Change the timing from step 8 or go to step 11 if you want to finish.
 10. Go to step 1.
 11. Evaluate rate coefficients of the reactions.
 12. Write a paper.

THIS IS THE MACHINE THAT WILL DO THE JOB!

SLOWING DOWN

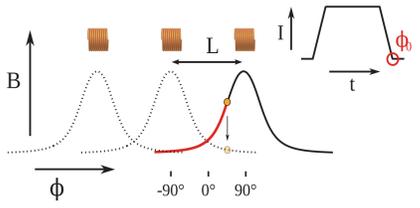
Beams of slow radicals or neutral polar molecules are generated by our decelerators.

STARK DECELERATOR FOR POLAR MOLECULES



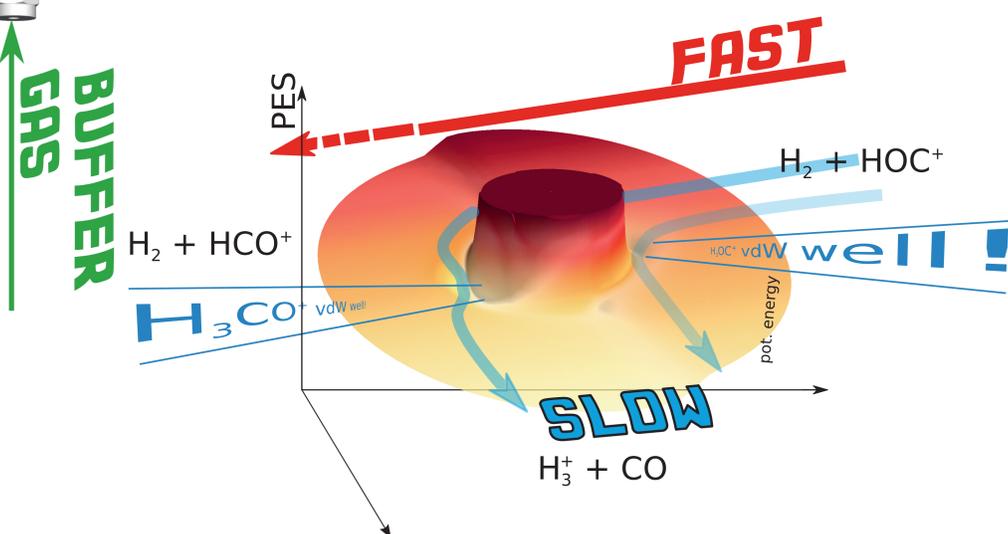
In a Stark decelerator, polar neutral molecules in low-field seeking quantum states can be decelerated through the implementation of rapid switching of voltages of the electrode pairs.

ZEEMAN DECELERATOR FOR RADICALS



In a Zeeman decelerator paramagnetic species can be decelerated passing through a sequence of solenoid coils.

WHAT DO WE WANT TO STUDY?



Stabilisation of intermediate collisional complexes can occur only at the lowest collisional and internal energies. [H.-G. Yu. Phys. Scr. 84 (2011), p. 028104] We want to discover the world of exotic chemistry.

INTERACTION OF VERY COLD MOLECULAR IONS WITH VERY SLOW NEUTRALS

冷 “THE WAY OF ION COOLING” 却道

