

Imaging of a degenerate Fermi gas of ultracold Lithium atoms

Bachelor Thesis in Physics

Robin Eberhard

April 5, 2016

Physics Institute, University of Heidelberg

Before 2 μm

Before 2 μm

Now 2 μm

Chapters:

1. Setup of the imaging path

Chapters:

1. Setup of the imaging path
2. Features of the new camera
 - ▶ Fast kinetics acquisition mode
 - ▶ Noise reduction

Chapters:

1. Setup of the imaging path
2. Features of the new camera
 - ▶ Fast kinetics acquisition mode
 - ▶ Noise reduction
3. Thermometry of an ideal Fermi gas

Setup of the imaging path

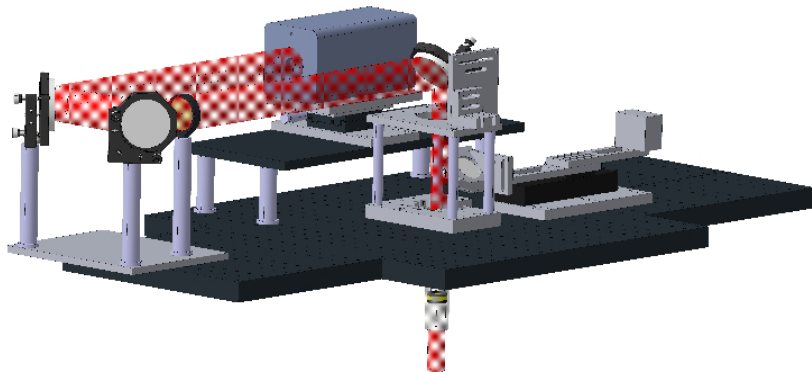


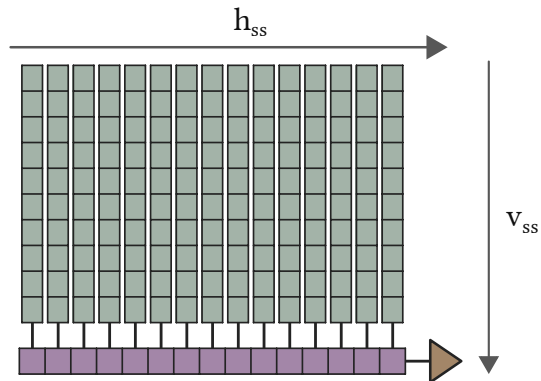
Image by Carmen Renner

Setup of the camera



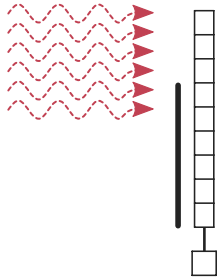
Image from <http://www.andor.com/>

Setup of the camera

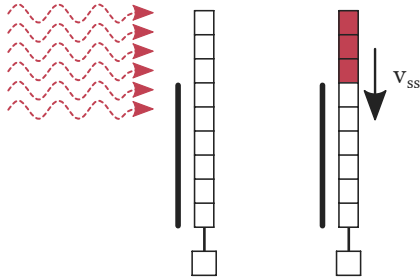


- pixel array
- readout register
- analog to digital converter (ADC)

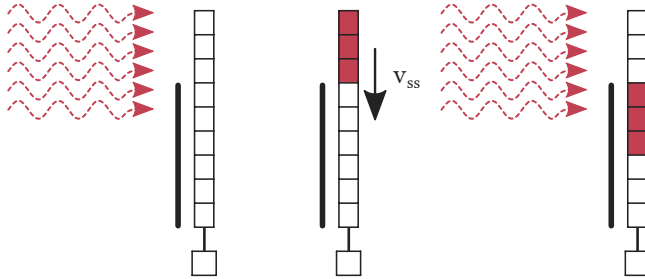
Fast kinetics mode



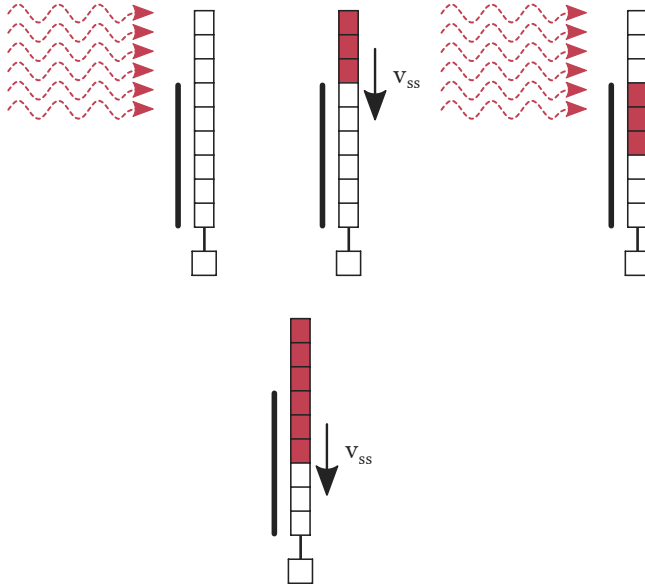
Fast kinetics mode



Fast kinetics mode



Fast kinetics mode



Fast kinetics mode

