

Laser Centre
ATOMIC AND MOLECULAR PHYSICS LABORATORY

Dažas domās par magnetometriju

Florians Gahbauers

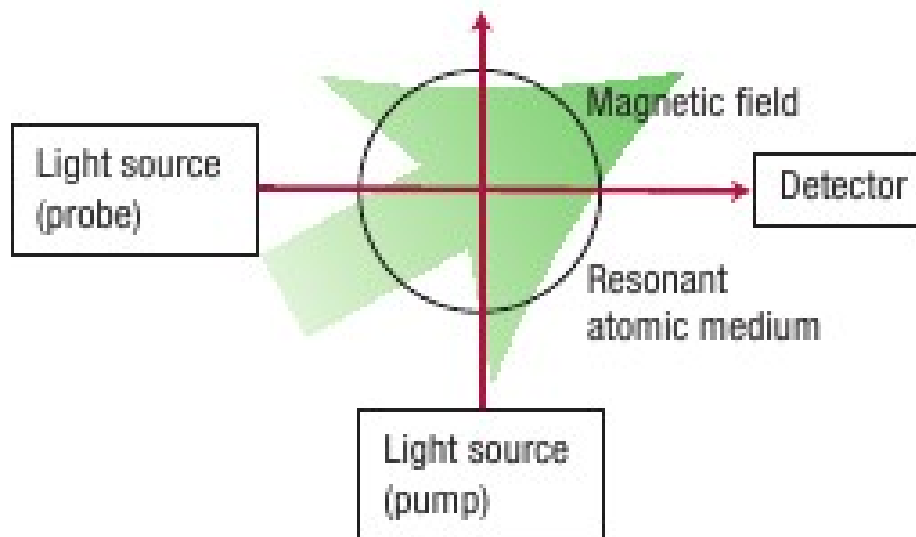
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Shema

- Magnetometrijas pamatideja
- FM magnetometrija
- RF magnetometrija
- Magneto-optiskās rezonances ETC
- Secinājumi

Magnetometrijas Pamatjedziens

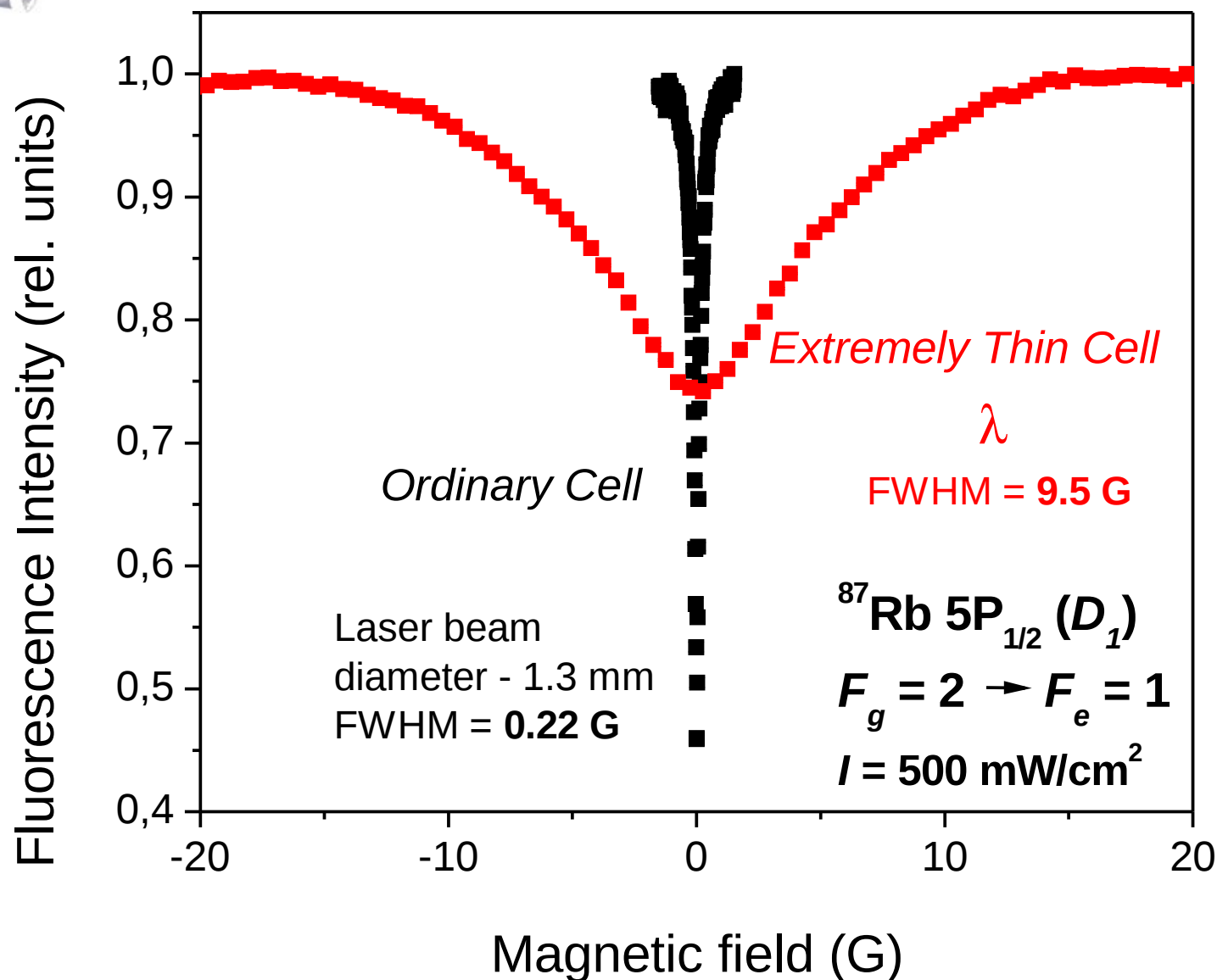
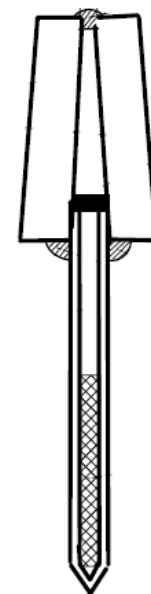


- Parrauga polarizācija
- Polarizācija attīstas magnētiska lauka ietēkmē
- Mērijums dot informāciju par polarizāciju

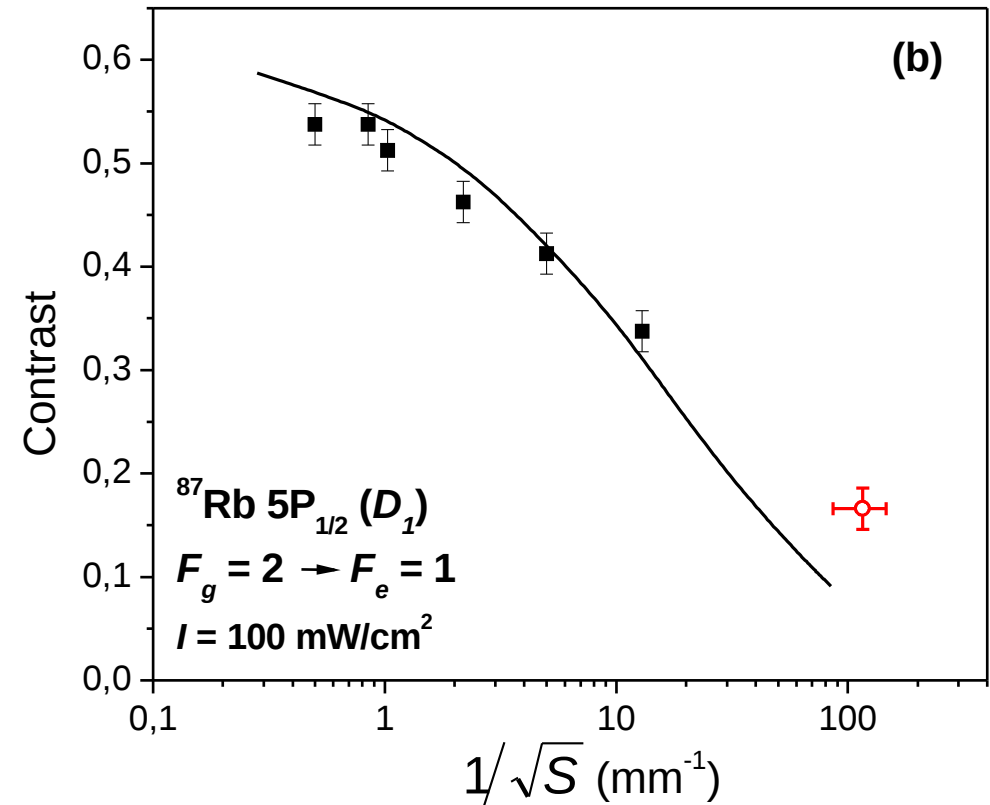
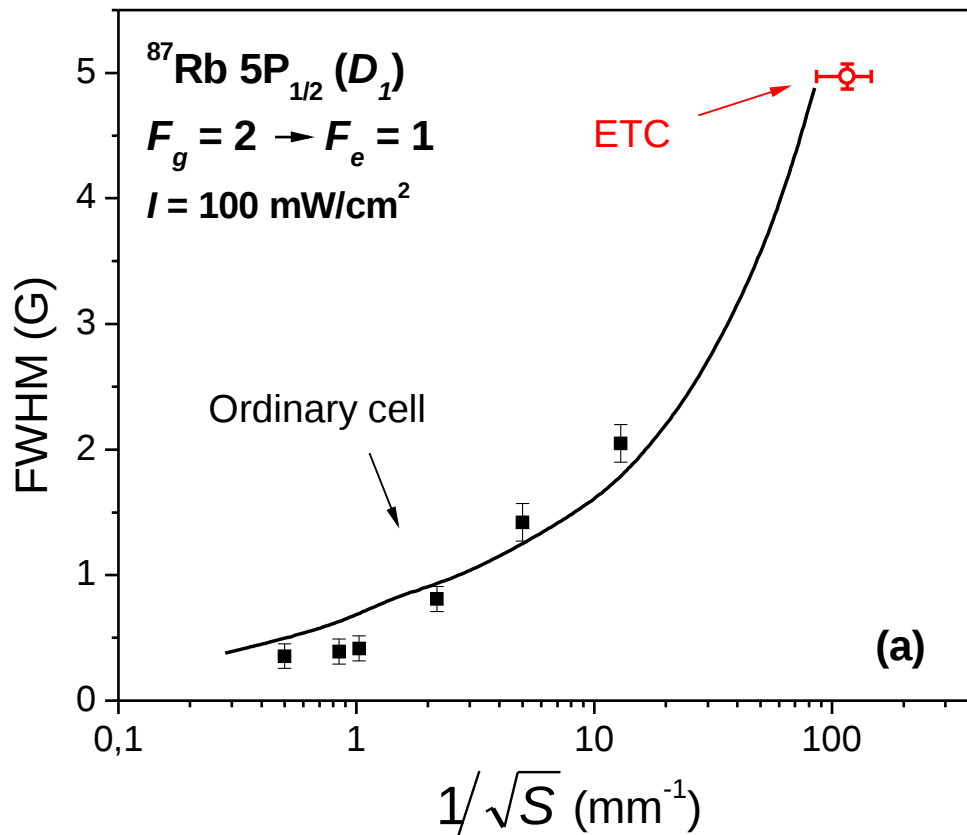
SPB VNTI

Jūtīgums

Comparison of dark resonances in ordinary and extremely thin cells



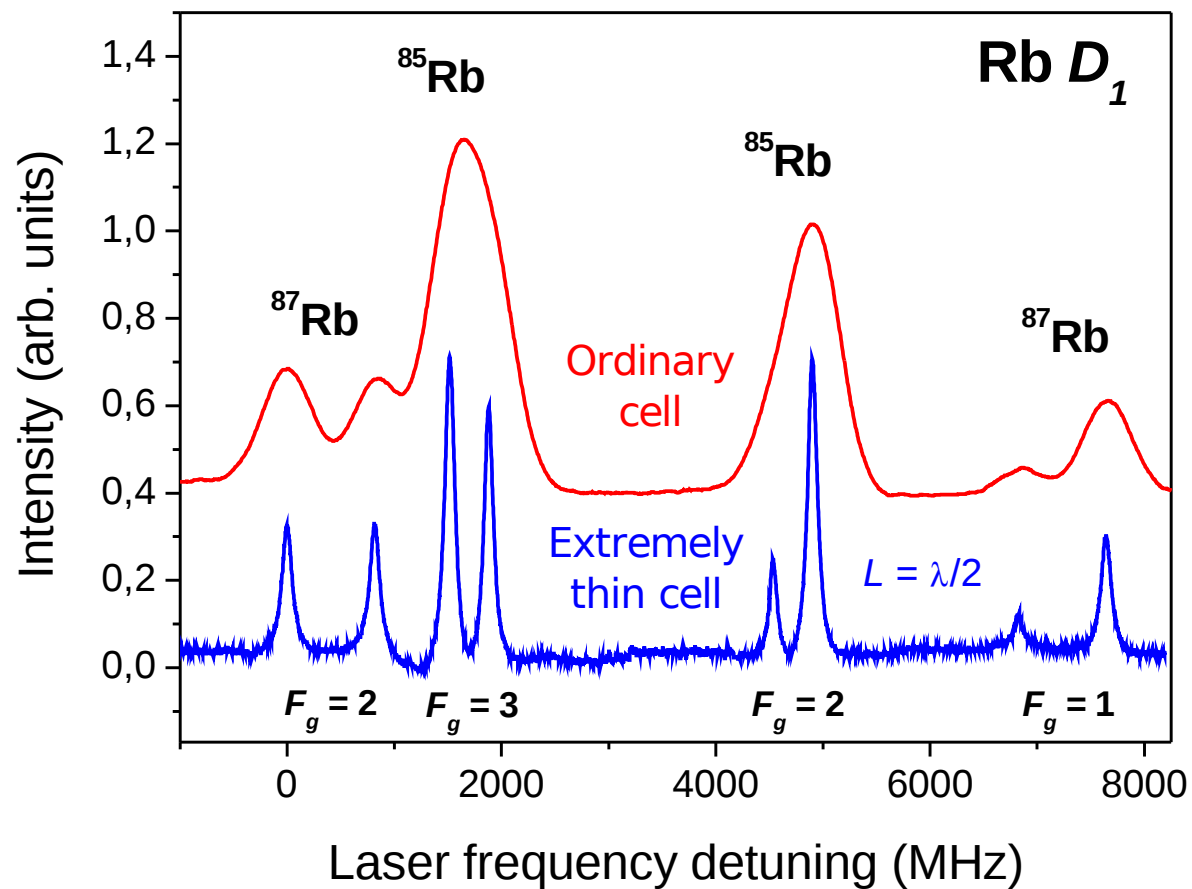
Resonance width and contrast as a function of laser beam diameter



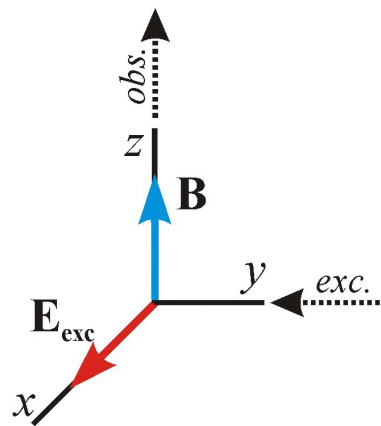
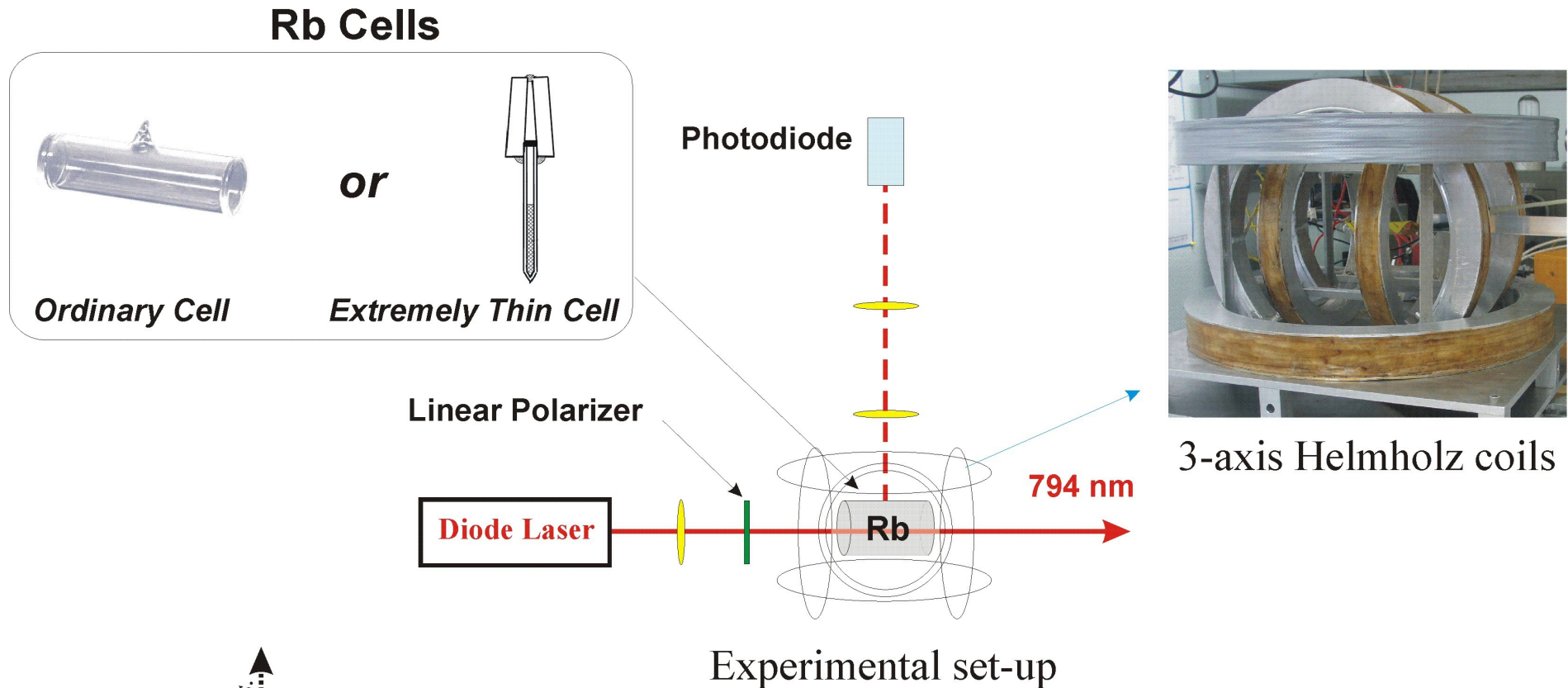
Doppler width

Ordinary cell: 600 MHz

ETC: 60 MHz

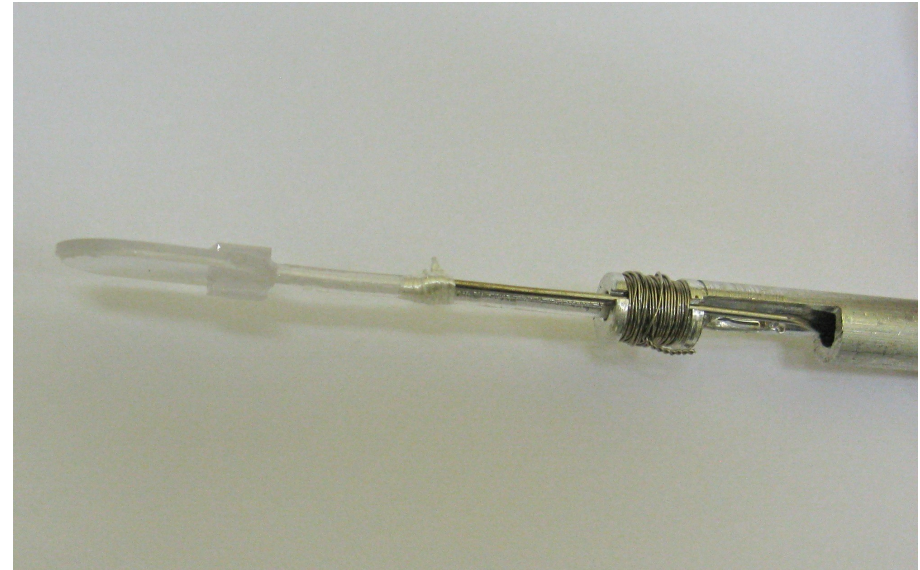
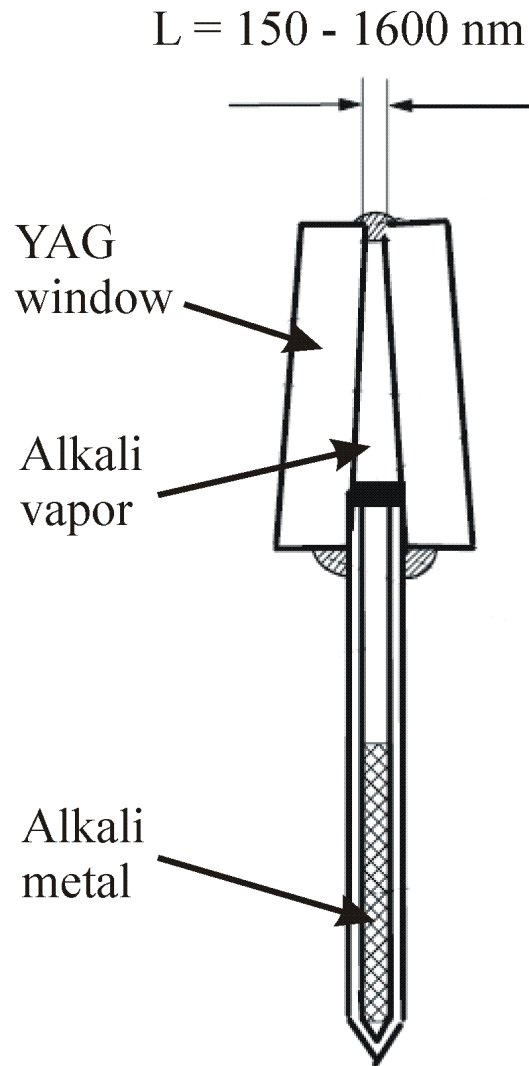


Experimental set-up



Experimental geometry. The relative orientation of the laser beam (exc), laser light polarization ($\mathbf{E}_{exc}$), magnetic field ($\mathbf{B}$), and observation direction (obs).

Extremely Thin Cell (ETC) or Nanocell



In an ETC, atoms are confined between walls separated by a distance on the order of the light wavelength, which makes possible sub-Doppler resolution. It was developed at the Institute for Physical Research in Ashtarak, Armenia.

