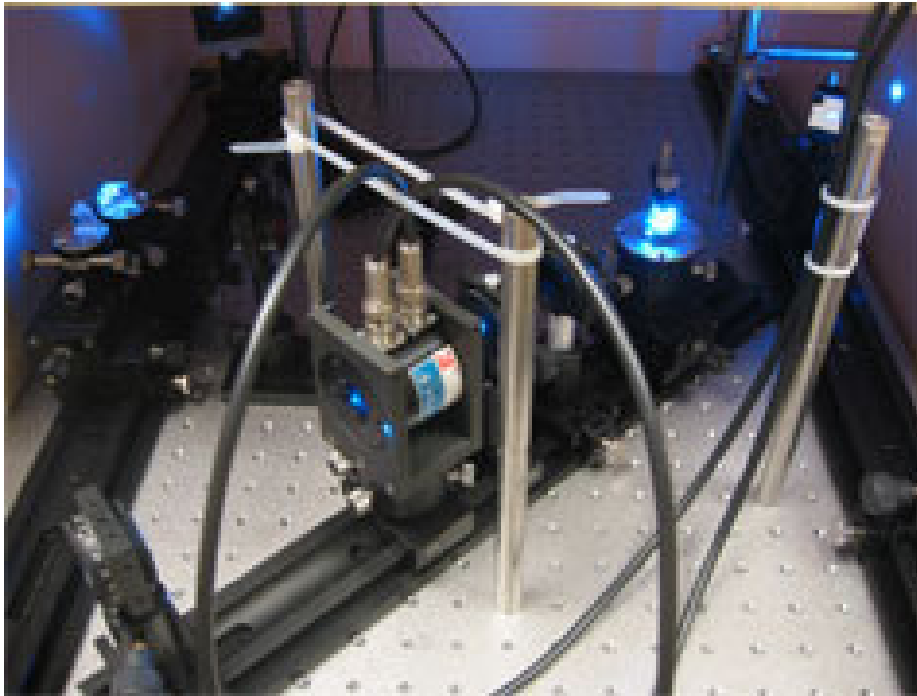


## Thermal Diffusion Forced Rayleigh Scattering :

A grating created by the interference of two laser beams is written in the sample under investigation. A small amount of dye, present in the sample, converts the intensity grating into a temperature grating, which in turn causes a concentration grating by the effect of thermal diffusion. Both gratings contribute to a combined refractive index grating that is read out by diffraction of a third laser beam. Analyzing the time dependent diffraction efficiency, three transport coefficients can be obtained. The thermal diffusivity  $D_{th}$ , the translation diffusion coefficient  $D$ , and the thermal diffusion coefficient  $D_T$ . The ratio of the thermal diffusion coefficient and the translation diffusion coefficient allows the determination of the so-called Soret coefficient  $S_T$ .



The photo gives an view of the Pockels cell that is used to switch the optical grating from hot to cold.

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