Laser light scattering methods - 1

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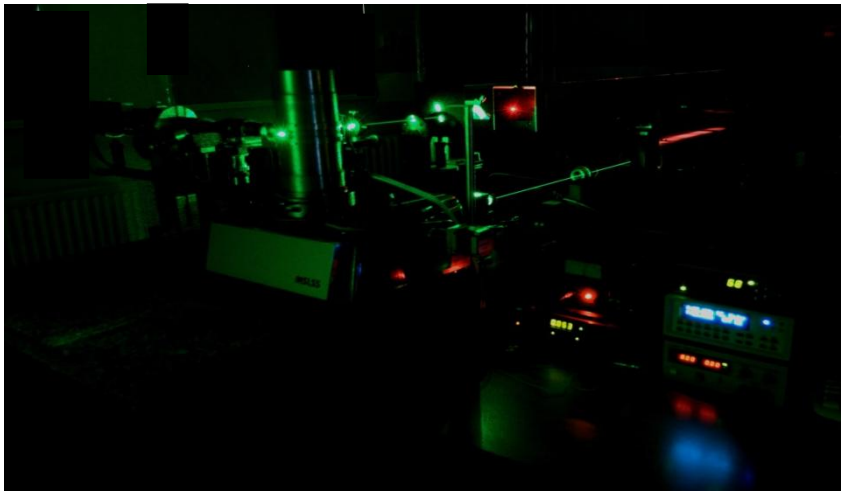
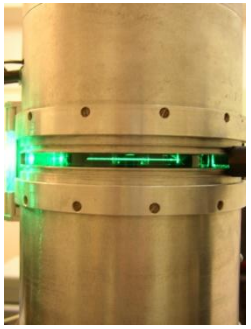
Static laser light scattering

Custom-made spectrometer with argon ion laser (Spectra Physics) and Helium-Neon gas laser (Melles Griot), PMT detector (EMI) and custom-made single photon counting system with software for data analysis. Temperature regulation with accuracy 0.01 C (Lakeshore). Obtained structural information on length scaels from 30nm to tens of microns.



Dynamic laser light scattering

Dynamic light scattering (photon correlation spectroscopy). As static scattering plus correlator ALV-7004 (ALV, Germany). Time scale 25ns – mins.



Depolarized laser light scattering

Analysis of (a)symmetry of scattering objects

Laser light scattering methods - 2

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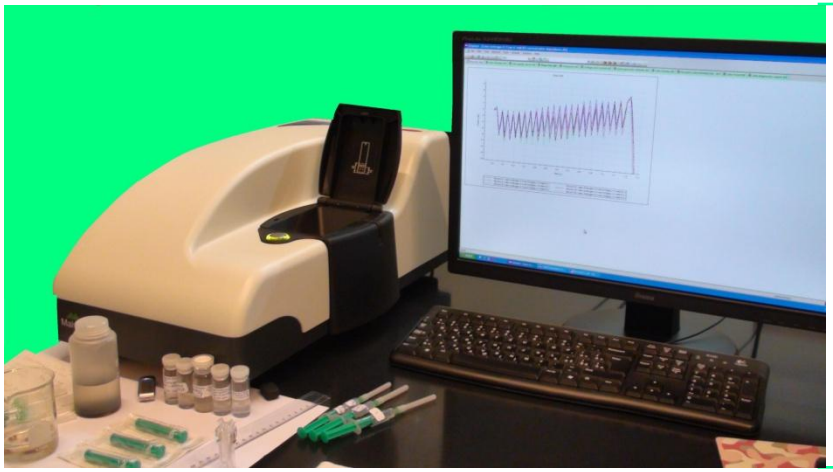
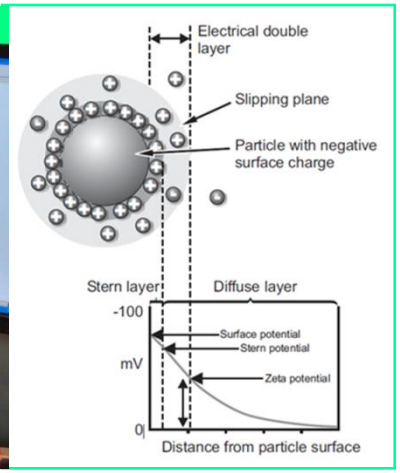
Electrophoretic laser light scattering

M3 (Mix Mode Measurement) technology electrophoretic laser light scattering includes electrophoretic mobility measurement using a PALS (Phase Analysis Light Scattering) method providing absolute values of electrophoretic mobilities and a LDV (Laser Doppler Velocimetry) method providing electrophoretic mobility distributions (Malvern Instruments, UK). Zeta potential is then calculated from mobilities.





Refractometer for refractive index increment batch measurements

Refractive index increment defines scattering contrast. Concentration range 0.05-15 g/kg, n = 1.0-1.75 (WGE, Germany)

Flow refractometer

Concentration range 0.005-5 g/kg, range 0.25 – 512 μRIU (Shodex,JP)