OPTICAL MICROSCOPY OF CHARGED COLLOIDAL MODEL SYSTEMS

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Optical microscopic methods are key methods for studies of colloidal model systems on the single particle scale. Common high resolution bright field optical microscopy can be applied to thin layers, while confocal microscopy is powerful in studying bulk suspensions. We apply those methods to highly charged colloidal model systems under strongly deionized conditions. The importance of such systems lies within their tunable, long ranged particle interactions depending on experimental parameters including particle number density and electrolyte concentrations within the solvent. For a proper control of the interaction parameters preparation within a closed pump circuit is convenient. For studies of both confined suspensions and bulk systems a special measurement cell has been developed which provides flat parallel walls with variable wall separation.