An overview of AC-electrokinetic techniques.

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Abstract: *Whereas impedance methods detect the frequency dependence of the direct electric response of a suspension, AC electrokinetic methods investigate the frequency dependence of orientation, deformation, movement, aggregation or rotation of single objects. Both techniques are based on the impedance properties of the different constituents of the suspended particles or cells. AC electrokinetic effects arise from the interaction of the induced dipole moment of the objects with the inducing external field. The effects can not only be exploited for dielectric spectroscopy but also for the manipulation of microscopic and submicroscopic particles like cells, organelles, supra-molecular structures or artificial colloids. This paper gives an overview of the different AC electrokinetic methods that have been attracting growing interest over the last few years.*