

Micro-particle manipulation in microfluidic with viscoelastic liquids

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Interest in microfluidic applications involving complex fluids has grown due to the unique fluid dynamics these systems exhibit, allowing for the development of highly effective devices for healthcare as well as biological and chemical analysis. Protocols that utilize particles suspended in viscoelastic liquids flowing through microchannels are becoming widespread. This is due to the extraordinary capabilities enabled by technologies that use geometrically simple microchannels combined with rheologically complex liquids. This contribution highlights some of the latest developments in viscoelasticity-driven microfluidic applications that utilize either deformable or rigid particles. It explores the impact of fluid rheology, particle mechanical properties, channel geometry, and particle volume fraction.