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Microfluidic Evaporation for Phase Diagram Screening PATRICK MOREAU, CNRS - Rhodia LOF, JEAN-BAPTISTE SALMON, JACQUES LENG, CNRS — We use a pervaporation-based microfluidic device to concentrate solutions in a controlled way. This allows us to develop chips for phase diagram screening,and to study both fundamental and technological issues, such as the impact of kinetic pathway of concentration on a variety of aqueous solutions (colloids, surfactants, polymers and mixtures of thereof). The first part of the presentation will deals with the characterization of the concentration process (including analytical results, numerical simulations, and experimental observations). It will be shown that our device is well suited for a wide range of particle sizes in the colloidal range. In the second part, we will present results obtained on several systems during (along) the concentration process (surfactants and polymers). On-chip FRAP (fluorescence recovery after photobleaching) and microrheology measurements will be presented in addition to optical and fluorescence microscopy.

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