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**High-throughput Microsphere Encapsulation in Emulsion Droplets by Electrospray** WUEN-SHIU CHEN, KENG-HUI LIN, Institute of Physics, Academia Sinica, Tapei, Taiwan — Colloidal clusters generated through emulsion encapsulation and evaporation open up the possibilities for assembly of complex crystal structures. Encapsulation in monodisperse emulsion droplets facilitates higher yield of identical clusters as building blocks. We utilize electrospray in an oil-in-water co-flow fluidic device to generate uniform emulsion droplets in micron size and at the rate of ten thousand droplets per second. We investigate the effect of applied voltage, flow rate and the conductivity of liquid on the droplet formation. We further show that incorporation of microspheres into the inner oil fluid enables the encapsulation and formation of clusters.

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