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Optical Chromatography of Bacterial Spores STEVEN SUNDBECK, ALEX TERRAY, JONATHAN ARNOLD, TOMASZ LESKI, SEAN HART, US Naval Research Laboratory — The technique of optical chromatography uses a laser mildly focused against fluid flow in a microfluidic channel to trap microscopic particles. Particles in the channel near the focal point of the laser are drawn toward the beam axis and then accelerated via optical pressure against the fluid flow, reaching an equilibrium point when the optical and fluidic forces on the particle are balanced. This equilibrium point may occur at differing distances from the focal point for microscopic particles with differing properties, such as size, shape, morphology, and refractive index. Thus, identification and separation of particles may be achieved in the system. Optical chromatography may be used as a detection technique for biological particles of interest, either directly or as a means of concentrating and filtering a sample. Of particular interest would be reliable methods for detection of *Bacillus anthracis*, a common weaponized biological agent. In this work we present optical chromatography experiments on bacterial spores which may be environmentally present with *B. anthracis* spores and interfere with detection.

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