

Supplementary Information

Enhanced light collection in fluorescence microscopy using self-assembled micro-reflectors

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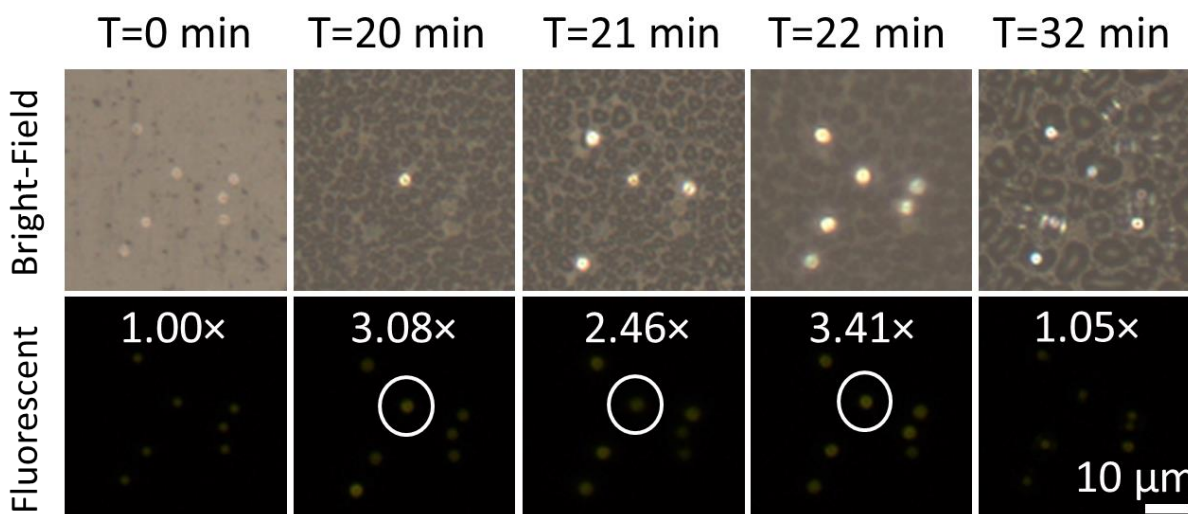
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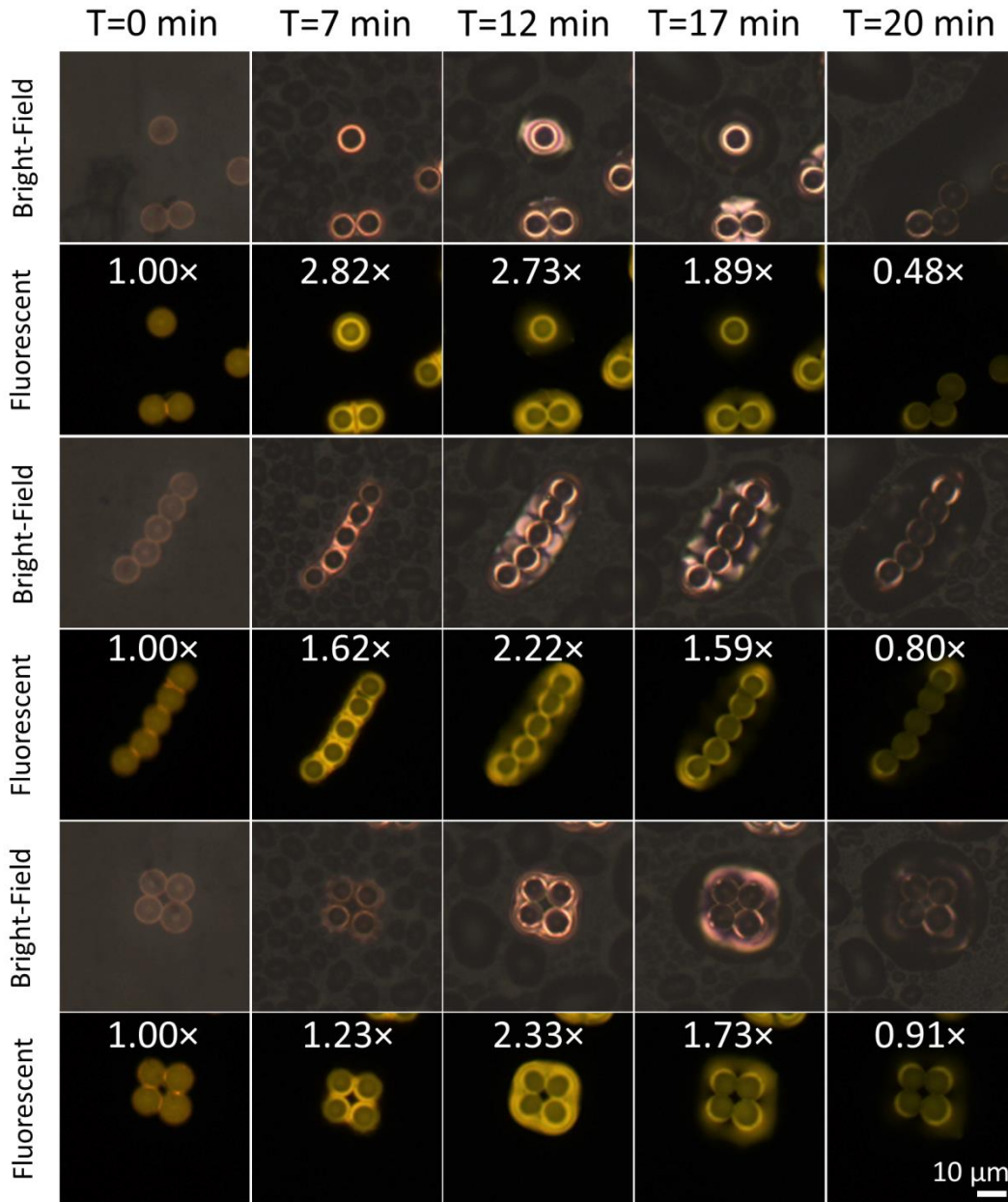
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Micro-reflector formation around 2 μm particles.



Supplementary Figure S1: Time-lapse reflected bright-field (20 \times objective; NA=0.5) and fluorescent microscope images of the formation of the liquid micro-reflectors around 2 μm fluorescent particles. The encircled particle in the fluorescent images exhibits the “blinking effect”. The particle’s relative intensity increase for each corresponding fluorescent image is also indicated on the image. We attribute this effect to the stochastic interactions of the liquid reflector with other non-specific droplets on the substrate. Smaller particles are more susceptible to this effect as the liquid meniscus volume becomes comparable to the average size of the nonspecific droplets.

Micro-reflector formation around particle clusters.



Supplementary Figure S2: Reflected bright-field (20× objective; NA=0.5) and corresponding fluorescent images of 10μm fluorescent particles during micro-reflector formation showing particle aggregates at different configurations. The detected intensity improvement created by the liquid micro-reflectors shows time and performance variation depending on the configuration of particles, but shows a very similar performance to that predicted by our model for single particles. The improvement is calculated by integrating the total light gathered from each particle configuration and dividing it by the intensity measured at T=0.