

Abstract Submitted
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Using Superhydrophobic Surfaces and Optical Caustics to Detect Nanoparticle Aggregation ANTONIO GARCIA, JAMES LINDSAY, ERIC GILMORE, None — A 3-D envelope of refracted light known as an optical caustic, can be formed by shaping an aqueous drop on a superhydrophobic surface which is used to generate a signal that is very sensitive to changes in particle size. When the sample being detected is suspended in the drop, slow evaporation induces movement that segregates smaller from larger particles, enhancing the speed of detection via induced aggregation. While the unique properties of optical caustics have been used in engineering science to evaluate stress distributions and contact between material components, they have not been widely used in diagnostics or biological analyses. This paper demonstrates how this method can track aggregation of gold nanoparticles for rapid detection of molecular disease markers using immunoassays.

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None

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