

Abstract Submitted
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Observations of Bacterial Behavior during Infection Using the ARGOS Method A.J. CHAREST, Wentworth Inst of Techn, S. ALGARNI, G.S. IANNACCHIONE, Worcester Polytech Inst — This research employed the Area Recorded Generalized Optical Scattering (ARGOS) approach which allowed for the observation of bacterial changes in terms of individual particles and population dynamics in real time. This new approach allows for an aqueous environment to be manipulated while conducting time-specific measurements over an indefinite amount of time. This current study provides a more time-specific method in which the bacteria remained within the initial conditions and allows for more time precision than provided by analyzing concentrations of plaque-forming units (PFU). This study involved the bacteria (F-amp) during infection by bacteriophage (MS2). The relative total intensity allows for detailed measurements of the bacteria population over time. The bacteria characteristics were also evaluated such as the root mean square image difference (at specific wavevectors), fractal dimension and effective radius. The growth rate of the infected bacteria occurred at a rate higher than the uninfected bacteria similarly, the death rates were also higher for the infected bacteria than the uninfected bacteria. The present study indicates that bacteria may react to infection by increasing the rate of population growth.

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