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Analysis Methods for Frequency Resolved Florescence Anisotropy Studies SAM MIGIRDITCH, JACOB COLE, TYLER FOLEY, BROOKE HESTER, Appalachian State University — Fluorescence is a phenomenon for which scientific tools have been developed with many diverse methods for extracting information from complex systems. One of these methods utilizes the examination of the anisotropy r, correlation time θ, and decay τ of the fluorophore. Here we develop computational techniques for analyzing experimental data acquired from decaying fluorophores. Using data from a frequency resolved decay of a fluorophore and an expected curve based on our model we use a standard least squares approach to curve fitting by adjusting the parameters in the model while seeking to reduce the sum of the squares of the error from fitting. In addition to the fundamental properties mentioned, we can also learn information about the physical state of a complex microscopic system with a bound fluorophore. Our analysis technique is tested by comparing the results against the results from previous experiments for well-studied fluorophores.

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