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**Analysis of Time Resolved Fluorescence Using a
Laguerre Basis***

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12:00 noon, HM 201**

ABSTRACT

Continuous as well as discrete Laguerre functions form a complete orthogonal basis in a Hilbert space and therefore have been used extensively in non-parametric modeling of nonlinear biological systems such as time-resolved fluorescence of cells and tissues. The approach is based on Volterra-Weiner theory. One of the techniques to investigate the system behavior is to represent it in terms of a Laguerre basis and use nonlinear least squares minimization obtained by an iterative scheme. This method is applied to the deconvolution of inherent fluorophore characteristics from nanosecond-scale time-resolved fluorescence decay curves which contain significant noise levels. The ability of this approach to resolve small changes in a noisy system is compared to that of a conventional multiexponential method.