Physics Department Seminar

Friday February 22nd, 2008

11:00am in PhSc 108

"Multimode Analysis of SHG Signal from Complex Biological Systems"

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Abstract:

We have developed a novel computational approach for quantifying structural disorder in biomolecular lattices with nonlinear susceptibility based on analysis of polarization-modulated second harmonic signal. Local disorder at the level of molecular organization is identified using a novel signal-processing algorithm sufficiently compact for near real-time analysis. Global and regional disorder within the biostructure is characterized using two-dimensional wavelet transform of the magnitude and phase of the second harmonic signal. Results suggest our signal processing method represents a robust, scaleable tool that allows us to detect both regional and global alterations in signal characteristics of biostructures with a high degree of discrimination.