



DREXEL UNIVERSITY

Materials Science
and Engineering
College of Engineering

Fall Seminar Series

New (Deep)-UV NLO Materials: From Synthesis to Applications

P. Shiv Halasyamani, PhD

Professor

Department of Chemistry, University of Houston

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PISB 104

Nonlinear optical (NLO) materials are critical in generating coherent light through frequency conversion, e.g., second harmonic generation (SHG). From the ultraviolet (UV) to the infrared (IR), NLO materials have expanded the range of the electromagnetic spectrum accessible by solid-state lasers. Wavelengths where NLO materials are still needed include the UV (~200-400nm) and deep UV (<200nm). Coherent deep-ultraviolet (DUV) light has a variety of technologically important uses including photolithography, atto-second pulse generation, and in advanced instrument development. Design strategies will be discussed, as well as synthetic methodologies. In addition, the crystal growth, characterization, and structure-property relationships in new UV and DUV NLO materials discovered in our laboratory will be presented. Finally, our crystal growth capabilities and recent crystal growth of functional materials will be described.

P. Shiv Halasyamani earned his B.S. in Chemistry from the University of Chicago in 1992. He completed his Ph.D. under the guidance of Prof. Kenneth R. Poeppelmeier at Northwestern University in 1996. From 1997-1999, he was a post-doctoral associate and later a Junior Research Fellow (Christ Church College) at Oxford University. He was hired as an Assistant Professor at the University of Houston in 1999, was promoted with tenure to Associate Professor in 2005 and to Full Professor in 2010.