Condensed Matter Physics Seminar
Department of Physics, National Taiwan University

The Raman Approach to Optical Waveform Synthesis

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Location R833
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All Are Welcome!

Abstract

It has been demonstrated that molecular modulation (Raman technique) is very effective in generating multi-octave frequency combs. The technique offers several advantages – good efficiency, broad spectral extension in the visible-uv range, and relative simplicity in its implementation. Harmonic combs thus generated have been used to synthesize periodic trains of single-cycle to sub-cycle waveforms. This is an initial step toward producing an optical function generator that is analogous to RF function generators. In this presentation I shall review our work in this regard. Then I shall discuss the potential of going one step further. That is, to produce waveforms that last for just one cycle or less of the carrier frequency. A prerequisite for this is to generate a phase coherent octave-spanning continuous spectrum. I shall present some preliminary results on our progress toward this goal.

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