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Measurements of phase distortions through pulse characterization

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The interaction of light with any material with refractive index, n , affects not only the amplitude of the transmitted light but also its phase. Accurate determination of the spectral phase of a laser pulse is paramount in various spectroscopic applications. There are many phase measurement techniques such as direct interferometric approaches including Frequency Resolved Optical Gating (FROG) and Spectral Phase Interferometry for Direct Electric-field Reconstruction (SPIDER) as well as indirect techniques such as ptychography. This presentation discusses an alternative approach of measuring phase distortions through the use of a Multiphoton Intrapulse Interference Phase Scan (MIIPS). The principle of the technique as well as the determination of the phase of the generated signal will be looked at. Possible applications in phase contrast imaging will also be discussed.

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