Contribution ID: **1491** Type: **Poster (Non-Student) / affiche (non-étudiant)**

Field synthesis at 1.8 microns for isolated attosecond pulses

Tuesday, 14 June 2016 19:20 (2 minutes)

Attaining an isolated attosecond pulse via high harmonic generation requires a temporal gate that can act within one half cycle of the driving field. Here, we use the interplay of nonlinear optics and spatio-temporal coupling to synthesize a half-cycle pulse. The half cycle pulse is centered at 1.8 microns, the idler of an optical parametric amplifier, and is intense enough to generate isolated attosecond pulses, tuneable over an octave in the extreme ultraviolet. I will also discuss this tool to study attosecond dynamics in the condensed phase.

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Session Classification: DAMOPC Poster Session with beer / Session d'affiches avec bière DPAMPC

Track Classification: Division of Atomic, Molecular and Optical Physics, Canada / Division de la physique atomique, moléculaire et photonique, Canada (DAMOPC-DPAMPC)