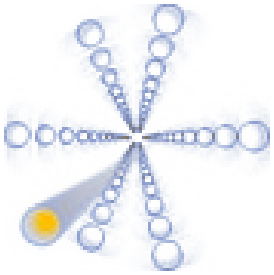

Contribution ID: **11** Type: **Invited talk**

Laser-Induced Plasma Channels by Nanosecond to Femtosecond Pulses

Thursday, October 9, 2014 4:30 PM (30 minutes)

The importance of stable and reproducible plasma channels is strongly connected to the need of guiding high intensity laser pulses in different experimental contexts from the remote sensing, to Inertial Confinement Fusion and Laser Plasma Acceleration. In particular, one of the major tasks for the progress of laser acceleration of electrons in plasmas is the guiding of focused pulses along path lengths much larger than the depth of focus. However the propagation of laser pulses in plasmas is accompanied by physical phenomena deeply depending on the pulse duration and intensity, as well as on the chemical composition and structure of the target from which the plasma is produced. Self-focusing and self-phase modulation of the laser pulse, electron relativistic motion, high amplitude self-generated magnetic fields, generation of electron plasma waves with the consequent electron acceleration and the related Betatron Radiation are the major effects to be considered and carefully monitored to improve their comprehension and the consequent control.

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Session Classification: S5: Novel Sources: FEL/Laser/Plasma Channels