

# Shaping ultrafast pulsed beams in space and time with programmable spatial light modulators

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**Abstract content** (Max 300 words) [Special Chars](http://indico.saip.org.za/getFile.py/access?target=_blank)

Laser pulses in the femtosecond time scale are indispensable tools in many scientific and technological disciplines. These ultrashort pulses provide unique temporal resolutions for understanding of phenomena that develop in a comparable time range. Also, optical energy squeezed into such short time window yield enormous high peak powers and intensities, paving the way to generate unprecedented interactions of light with matter and triggering a new scenario for applications in the world of photonics. However, ultrashort pulses are extremely elusive and are more unforgiving of imperfections in optical systems as compared to ordinary incoherent broadband light sources. Wave front control and correction, as well as pulse shaping, is crucial in order to be able to manipulate the ultrashort pulse in an optimal, reproducible and well-defined way and to obtain ultimate performances for ultrashort laser facilities.

On the other hand, advances in spatial light modulation enable fine control of the amplitude, the phase, and/or the polarization of the light field at the micron scale. By merging the two realms, in this talk we will demonstrate pulsed laser beams with intriguing spatial and temporal waveforms by shaping the laser output by using a liquid crystal spatial light modulator.

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