

# Innovative Applications of Ultrashort Optical Pulses and Optical Frequency Combs

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Ultrashort pulse laser is a series of ultrashort mode-locked pulse train in time domain. On the other hand, ultrashort pulse is highly localized in space domain and spectrally broadened in frequency domain. Such multi-dimensionality is useful for wide-variety of applications. Moreover, since a series of pulses in an ultrashort laser are highly identical and equidistant, such multiplexity provides wide dynamic range in applications. Especially, in frequency domain, it is called "optical frequency comb". The research target is to pioneer the potential application fields of ultrashort lasers and especially optical frequency combs by use of their every aspect.

