

# Acquiescent Light

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Since its first demonstration (Maiman 1960), the laser has become an indispensable tool that has transformed science and technology and impacted many aspects of our daily lives. Yet, after half a century, vast regions of the optical spectrum still remain inaccessible to conventional lasers.

The potential of nonlinear optical phenomena as an alternative means for the generation of coherent light was recognized soon after the invention of the laser (Bloembergen, 1962). However, the promise of nonlinear optics remained unfulfilled for almost another 30 years, until the advent of novel nonlinear materials, advances in laser sources, and innovative design concepts prompted renewed interest in this area. Today, nonlinear frequency conversion sources can surmount spectral barriers unattainable with alternative techniques, paving the way for new application areas. In particular, optical parametric oscillators (OPOs) have been established as uniquely versatile sources of coherent light with unmatched spectral and temporal flexibility, overcoming the long-standing limitations of lasers. This talk will provide an overview of the latest advances in OPO technology for the generation of coherent radiation from the ultraviolet to the mid-infrared and THz, and from the continuous-wave to ultrafast femtosecond time-scales. Some novel and emerging applications of OPOs will also be highlighted.



Femtosecond optical parametric oscillator spanning across the full visible spectrum.