

SH 2: Optical Parametric Oscillators

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Intended Audience

This course is intended for researchers with little or no background in OPOs, as well as those more familiar with the subject area, who wish to enhance their understanding and update their knowledge of the latest developments in OPO device technology. The course will benefit graduate students and other industrial and academic researchers already involved or in early stages in OPO development.

Benefits and Learning Objectives:

- Understand the basic principles of optical parametric generation and amplification of light
- Learn the operating principles of optical parametric devices, in particular optical parametric oscillators (OPOs)
- Obtain an understanding of nonlinear gain, phase-matching, operation threshold, device architectures, resonator configurations, tuning, spectral and temporal behavior
- Identify the critical issues in the design of optical parametric devices, including material and pump laser selection
- Acquire the required skills and apply the necessary procedures in the practical implementation of OPO devices in cw, pulsed, picosecond and femtosecond operation
- Learn the necessary techniques for spatial, spectral, and temporal control of OPO devices in different operating regimes
- Gain a perspective of current OPO technology, the important recent developments in the field, as well as novel and emerging applications of OPO sources