

## CHAPTER OVERVIEW

### 3: Third-Order Nonlinear Spectroscopies

Third-order nonlinear spectroscopies are the most widely used class of nonlinear methods, including the common pump-probe experiment. This section will discuss a number of these methods. The approach here is meant to be practical, with the emphasis on trying to connect the particular signals with their microscopic origin. This approach can be used for describing any experiment in terms of the wave-vector, frequency and time-ordering of the input fields, and the frequency and wavevector of the signal.

[3.1: Selecting signals by wavevector](#)

[3.2: Photon Echo](#)

[3.3: Transient Grating](#)

[3.4: Pump-Probe](#)

[3.5: CARS \(Coherent Anti-Stoke Raman Scattering\)](#)

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