Title:	Attosecond delay lines: design, characterization and applications
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Abstract:	Attosecond delay lines are key to enable time-resolved measurements on atoms, molecules, plasma and solid-state materials. This tutorial review presents the current status of a wide variety of attosecond delay lines operating from the infrared to the X-ray spectral region. Depending on the wavelength regime of the pump and probe pulses, we have divided attosecond delay lines into four broad categories: IR–IR, XUV–IR, XUV–XUV and X-ray–X-ray delay lines. Further, the designs differ as to whether they are based on amplitude division or wavefront division of the laser beam. We discuss the design ideas, compactness, calibration and stability of various attosecond delay lines and compare their performance in corresponding experiments. Applications of the delay lines to resolve selected attosecond phenomena are shown along with future perspectives towards achieving zeptosecond resolution.
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