

## Attosecond pulse shaping using phase optimized mirrors

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We show how pulse shaping of attosecond radiation can be achieved using specially-designed multilayer XUV mirrors through advanced control of the spectral amplitude and phase. The mirrors are designed to compensate for the intrinsic chirp of the attosecond XUV emission.

Key features of the mirrors are:

Control of the intensity and phase over a large bandwidth of more than 20 eV

50eV central wavelength

High reflectivity

45 degree angle of incidence

We show that their combination with metallic foils introduces third-order dispersion, the amount of which can be controlled by adjusting the mirror's incidence angle. This results in controllable attosecond beating allowing us to shape the attosecond radiation from a single to a series of sub-100 as pulses.