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Abstract: The first part of this thesis deals with the three-step model of High Harmonic Generation using Femtosecond pulses and we will begin with a brief discussion of the model and the theory behind the phenomenon. The second and the major part of this thesis deals with the experimental techniques and the setup (including the Ultra-High vacuum and associated components) required and used by us for generating Attosecond pulses in the EUV region. We will also discuss in detail the methods used for the beam alignment and the procedure to obtain "Femtosecond Time Zero" using a modified "Mach-Zehnder Interferometer setup". The third and final part of this thesis deals with the detection and measurement of Attosecond pulses using various techniques and the principle behind the same. We will also discuss in detail regarding the working principle of a "Micro-Channel Plate detector".

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