

**Master 2014**

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**Acousto-Optic Tunable Filters (AOTFs).**

***ABSTRACT - Masterthesis***

Acousto-optic tunable filters (AOTFs) are solid state wavelength tunable optical filters. Modern AOTFs are constructed by attaching piezoelectric transducers to an appropriate crystalline material. By driving the transducers at the appropriate frequency, a series of perturbations traverse the material. Interactions of photons with these perturbations allow the AOTF to selectively diffract a single narrow-bandpass wavelength. The wavelength may be varied by changing the applied frequency.

The main idea behind this thesis is to study the behaviour of AOTF. A measurement set-up for characterization of AOTF was made and with the help of it different behavioural characteristics were studied. A variable RF source is connected to the AOTF which is used to tune the tunable filter by changing the frequency and power of RF and the output spectrum of the filtered output signal is observed through an Optical Spectrum Analyzer. By changing the RF frequency and power different relevant characteristic of AOTF were studied.