

TUNABLE LASER FOR PLASMA DIAGNOSTICS

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The modern laser intended for plasma diagnostics must provide the band of radiation spectrum tuning, adjustment of spectrum line width, high speed tuning and precise spectrum forming. During the design of tunable laser the most complicated problem is the design of radiation spectrum control system and the choice of spectrum forming algorithms. For the spectrum forming and stabilization the device that determine of spectrum composition is required. We proposed to use in spectrum analysis the Fabri-Perot interferometer with high resolution. The analysis of interference image consists of several stages, which implemented consequently by the hard- ware devices and system software. The interference image is read from CCD-sensor, transferred through connection line into videoimage processing board, converted to the digital form and placed into the special memory. The program process the image formerly by the static filter and secondly by Fourier filter. Then the set of interference circumferences radii is founded and the set of wavelengths is calculated, separately for each circumference and the mathematical expectation of line wavelength and its variance is defined. The value of mathematical expectation is used for deriving of deflection of the current wavelength value from needed one.