

Data acquisition system using diode array for a spectrometer

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Abstrak

ABSTRACT

Data acquisition system using diode array for a spectrometer has been designed and constructed. The light detection is performed by a photodiode array consisting of 512 photodiodes. The superior quantum efficiency of the detector and the direct increase of optical flux with photodiode electrons make it works as a very fast detector. This detector is supplemented with a charge-coupled device working as a shift register for the array, and as a result each light spectrum can be scanned in less than one minute.

The detecting subsystem is followed by a 12 bit analog to digital conversion module which operates at the speed of 26 uses. This data acquisition system is also equipped with an Z BO CPU controlled interface module for its data transfer to an IBM PC, to allow further processing and analysis of the data as well as its final display. In addition to each individual subsystem testing, the whole integrated system has also been tested with a known spectrum and the result is satisfactory.