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## P3.062 High throughput spectrometer for plasma ion temperature fluctuations measurement on EAST

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A high throughput spectrometer has been developed for the measurement of the plasma ion temperature fluctuations on EAST tokamak. The designed spectrometer operates at the spectral range of  $527.5 \pm 5$  nm, then the emission lines from CVI at 529.1nm and NeX at 524.9nm can be observed simultaneously. The collimated and focus lenses are specially developed in order to realize the maximize transmission and keep the optimized image quality. One customized transmission grating sandwiched by two identical BK7 prisms from Wasatch Photonics is used. The clear size of the grating is  $205 \times 120$  mm and the grating has very high diffraction efficiency of  $>75\%$  for unpolarized light. One existing high speed Phantom V710 camera ( $1280 \times 800$  pixels, active area:  $25.6 \times 16$  mm) is used to test the performance characteristics of the spectrometer at the first step. In this paper, an overview of the spectrometer will be shown and the laboratory tests of the spectrometer performance are presented.

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