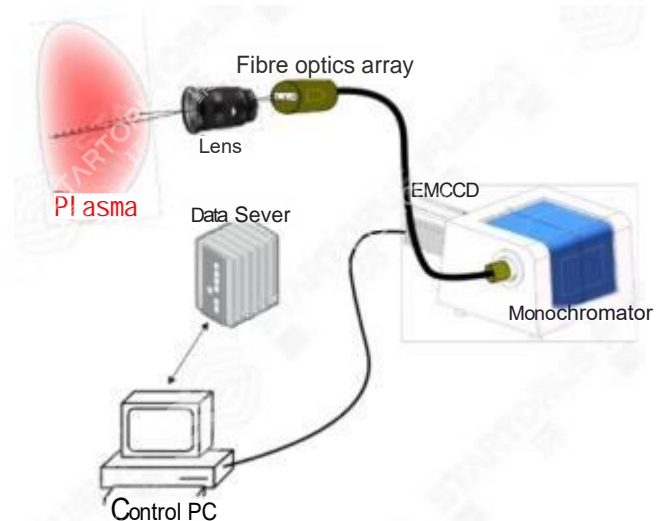


Ion Doppler Spectroscopy (IDS) System

Introduction

Ion Doppler Spectroscopy (IDS) is system an ion temperature diagnostic for fusion plasma that does not rely on beam injection. The characteristic spectral lines generated by the electronic transitions of specific ions in the plasma are subject to thermal motion broadening (Doppler broadening). By measuring the Doppler broadening and frequency shift of these ion characteristic spectral lines, ion temperature and flow velocity can be analyzed. Our IDS diagnostic and automated data analysis system can measure the temperature and flow velocity distribution of background plasma without beam injection, providing cm level spatial resolution and ms level temporal resolution.



Parameters

- Number of Channels: 1~40
- Measured Spectral Lines: 300~800nm, selectable measurement spectral lines (spectral lines around 500 nm are recommended)
- Spatial Resolution: >2 cm, based on requirements
- Temporal Resolution: >1.5 ms, based on the number of channels
- Slit Width: 20~100 μm
- Spectral Resolution: 0.03 nm@313.1 nm
- Line Dispersion: 0.6 nm/mm ~ 0.85 nm/mm

Applications

Ion Doppler Spectroscopy system can be applied to high spatial and temporal resolution ion temperature measurements, and analysis of flow velocity distribution in fusion plasma without beam injection.