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2.41 Commissioning and Calibration of VUV Spectrometer on Versatile Experiment Spherical Torus

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A vacuum ultraviolet (VUV) spectrometer spanning wavelength range 5-20 nm was commissioned on Versatile Experiment Spherical Torus (VEST), and wavelength calibration was conducted. The incident lights at 87° diffract at the 1200 g/mm concave grating and form a spectral image on the flat focal plane. A back-illuminated charge coupled device (CCD) of 2048 x 512 pixel array (13.5 x 13.5 µm2/pixel) observes the temporal evolution of spectrum during VEST discharge. A spectrum of oxygen and carbon impurity lines of VEST is predicted by OPEN-ADAS database and NIST database, and the wavelength calibration is carried out by the obtained spectrum and the wavelength positions on the flat-field focal plane. The electron density and temperature of VEST is estimated by comparing the ratio of the measured peaks with the predicted spectrum of carbon and oxygen in VEST using collisional radiative (CR) model and OPEN-ADAS database.

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