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2.14 Velocity-space sensitivity of the compact neutron emission spectrometers at EAST

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Several compact neutron spectrometers are now installed at EAST to obtain the information of fuel ions produced in core plasmas. Here, a stilbene and an NE213 liquid scintillator neutron spectrometers will be discussed. Both of the spectrometers have a horizontal line of sight, while at different positions, and are proved to show good performance when the NBI auxiliary heating system is applied. Taking the response function into consideration, the velocity-space sensitivities given by the instrument-specific weight function of the beam-thermal part of neutron energy spectra in D-D plasma are derived for both the spectrometers. This method is supposed to make it possible to directly determine the contribution from a given velocity-space distribution of the fast ions to the measurement results.

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