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P5.1028 Research on beam emission spectroscopy combined HL-2A tokamak real experimental data with spectra simulation code

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A beam emission spectroscopy (BES) diagnostic system has been developed on HL-2A tokomak. Combined with motional stark effect (MSE) diagnostics, the BES could assess the radial electric field and the safety factor, which plays an important role in plasma control and impurity transport processes. A Simulation of Spectra (SOS) code has been developed for spectra simulations based on various tokamak devices' real conditions. It can be used for designing visible spectral diagnostics system and predicting its performance. In this paper, based on the HL-2A real experimental running parameters, it used the SOS code to simulate BES and MSE spectra. The spectra were consistent with experimental data fitting results. The Simulation of Spectra code was also able to get the safety factor and other parameters. The results reveal that this code could be used to design similar diagnostic systems for ITER in the future.

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