

Abstract Submitted
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Real-time EFIT data reconstruction based on neural network in KSTAR SEHYUN KWAK, Department of Nuclear and Quantum Engineering, KAIST, Daejeon, Korea, YOUNGMU JEON, National Fusion Research Institute, Daejeon, Korea, YOUNG-CHUL GHIM, Department of Nuclear and Quantum Engineering, KAIST, Daejeon, Korea — Real-time EFIT data can be obtained using a neural network method. A non-linear mapping between diagnostic signals and shaping parameters of plasma equilibrium can be established by the neural network, particularly with the multilayer perceptron. The neural network is utilized to attain real-time EFIT data for Korea Superconducting Tokamak for Advanced Research (KSTAR). We collect and process existing datasets of measured data and EFIT data to train and test the neural network. Parameter scans such as the numbers of hidden layers and hidden units were performed in order to find the optimal condition. EFIT data from the neural network was compared with both offline EFIT and real-time EFIT data. Finally, we discuss advantages of using neural network reconstructed EFIT data for real time plasma control.

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