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**Fast ion collective Thomson scattering (CTS) diagnostic results at TEXTOR, ASDEX Upgrade and status of ITER design** S.K. NIELSEN, Risoe-DTU/PSFC MIT, H. BINDSLEV, S.B. KORSHOLM, F. LEIPOLD, P. MICHELSEN, Risoe-DTU, P. WOSKOV, PSFC MIT, J.W. OOSTERBEEK, IPP-FZ Juelich, E. WESTERHOF, FOM, F. LEUTERER, D. WAGNER, IPP-Garching, TEXTOR TEAM, ASDEX TEAM — In ITER, fast alpha particles born in fusion processes will account for up to 70% of the heating power. Measurements of confined fast ions resolved in space, pitch angle, energy and time are needed to support improvements of current theories. Fast ion collective Thomson scattering (CTS) can meet this need. Here we present results from CTS on TEXTOR where a 150 KW 110GHz gyrotron scatters off fluctuations driven by NBI/ICRH fast ions. The 1D fast ion velocity distribution has been inferred, where the resolved direction and the measuring volume are defined by the scattering geometry. The spatial resolution is $\sim$10 cm while the temporal resolution is 4 ms. The build-up and slowdown of co-injected neutral beams are reported along with comparisons between co and counter beam ion dynamics. The measured decay and build-up of co NBI is in agreement with classical slowing down. First results from ASDEX Upgrade, where a 105 GHz system is installed are expected to be presented. Finally, the status of the 60 GHz CTS diagnostic design proposed for ITER is presented. Supported by U. S. DoE and EURATOM.

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