

Excitation of Alfvén eigenmodes using the DED coil in the TEXTOR tokamak

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Results from the first experiments to excite Alfvén eigenmodes (AEs) in the TEXTOR tokamak plasma by using the dynamic ergodic diverter (DED) coils as an external antenna are presented. Notable features of AEs experiments using DED coils are; exciting different modes around $m/n=12/4$, $6/2$, $3/1$ by changing the coil configuration, studying the effects of magnetic islands and edge magnetic fields ergodization on AEs when the rf current is applied for DC and AC DED operation, etc. The rf current of $\leq 4A$ is applied on the one of the DED coils by scanning the frequency 100kHz-1MHz. The coil impedance versus frequency is measured for the Ohmic plasma ($I_p = 400$ kA, $B_t = 2.25$ T, $n_e \sim 2 \times 10^{19}$ m⁻³) and compared with the theoretical calculation. The excited waves are detected by the Mirnov coils installed around the torus. Detailed structure and the dependences of AEs on the plasma parameters are investigated.