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Measurements of CAE $\tilde{n}$ in DIII-D and identification of intermediate frequency AEs[1] NA CROCKER, KK BARADA, UCLA, M VANZEELAND, GA, SX TANG, KE THOME, UCLA, RI PINKSER, GA, WW HEIDBRINK, UCI, TL RHODES, UCLA, L BARDOCZI, S MUNARETTO, RJ LAHAYE, GA, GJ KRAMER, M PODESTA, PPPL, DIII-D TEAM — New analysis is reported of recent measurements of fast-ion driven compressional Alfvén eigenmodes (CAE, $\omega <\sim \omega_{ci}$) and intermediate frequency AEs ($v_A/R \ll \omega \ll \omega_{ci}$). These modes are of interest because they can potentially cause electron energy transport; additionally, these measurements advance the development of AE spectroscopy as a tool for non-invasive diagnosis of fast-ions in DIII-D and burning plasmas. Measurements of CAE radial structure obtained with an array of eight fixed frequency reflectometers are analyzed to determine absolute $\tilde{n}$. Intermediate frequency modes preliminarily identified as Alfvén eigenmodes (AE) were observed in beam-heated ELMing H-mode plasmas. However, the observed frequencies—f $\sim$1 – 2 MHz $\sim$ 2 – 5 $v_A/2\pi R$ (where $v_A/R \sim 0.03\,\omega_{ci}$)—are too low for CAEs and too high for toroidicity-induced or reverse shear AEs. The observed frequencies and two-point toroidal mode number measurements ($|n|$= 3 – 6) will be compared with the spectrum of AEs predicted by the ideal MHD eigenmode code NOVA in order to potentially identify the type of mode observed.

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