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Reversed shear Alfvén Eigenmodes in the frequency range of the triangularity induced gap on JET[1] G.J. KRAMER, G.Y. FU, R. NAZIKIAN, R.V. BUDNY, N.N. GORELENKOV, PPPL, C.Z. CHENG, Cheng-Kung Univ.,Taiwan, B. ALPER, S.D. PINCHES, F. RIMINI, S.E. SHARAPOV, P. DE VRIES, K-D. ZASTROW, V. ZOITA, Euratom/UKAEA,UK, JET-EFDA COLLABORATION[2] — In reversed magnetic shear plasmas a class of Alfvén eigenmodes (AE) can exist, the Reversed shear Alfvén eigen modes (RSAE). They are often observed in Tokamaks and are located just above the local maximum of the lower TAE continuum gap at the shear reversal point. Similar maxima exist in the higher order Alfvén gaps such as the EAE and NAE gap. In this presentation we will show from ideal MHD simulations and analytical theory that modes similar to the RSAE can exist under certain conditions in those higher order gaps. In burning plasmas modes in the AE gaps can be harmful for the confinement of fusion born alpha particles which can get lost before they thermalize thereby reducing the efficiency of a fusion reactor. We will show experimental evidence for RSAEs in the NAE gap in JET discharges. The JET NAE-RSAEs are identified from state of the art MHD simulations with the NOVA code in which the experimentally observed equilibrium parameters were used.

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[2]M L Watkins et al., Fusion Energy 2006, Chengdu, IAEA, (2006)

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