

Abstract Submitted
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Observation of Kinetic Alfvén Eigenmodes with RMP Penetration in J-TEXT Tokamak LINZI LIU, QIMING HU, GE ZHUANG, Huazhong University of Science Technology, J-TEXT TEAM — kinetic Alfvén eigenmodes excited in J-TEXT Ohmic plasmas are observed when the penetration of external applied resonant magnetic perturbations (RMPs) occurs. These modes are identified localized in gaps (20-80kHz) triggered by kinetic thermal ion effect [Chen L and Zonca F 2016 Reviews of Modern Physics] in the Alfvén continuum. One of these modes, which have the highest frequency, is modulated by the RMP intensity, and its frequency converge to the nonlinearly modified beta-induced Alfvén eigenmode (BAE) continuum accumulation point [Biancalani A 2011 PPCF]. The experimental observation of this type of mode agrees with BAE whose frequency is proportional to the magnetic island half width. Another type of mode with lower frequency 35kHz well settled down in the thermal ion transit frequency range is found that it has no relation with RMP strength and magnetic island width, as indicated in previous work [Linzi L 2015 PPCF]. The investigation of the third type of modes shows that the mode frequency is in the range of diamagnetic drift frequency (20kHz) and its damping mechanism should involve the fast particle effect. All of the modes above are observed only in low density (10^{19}) *alongwithslide – awaydischarge*.

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