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Interaction of Resonant Magnetic Perturbations with energetic particle modes on KSTAR[1] CLIVE MICHAEL, University of California, Los Angeles, JUNGHEE KIM, JISUNG KANG, JUN-GYO BAK, National Fusion Research Institute, MATTHEW HOLE, ZHISONG QU, JOSHUA DOAK, HOOMAN HEZAVEH, Australian National University, NEAL CROCKER, University of California, Los Angeles — In addition to ELM mitigation, resonant magnetic perturbations (RMPs) may be used to control the fast particle population and possibly as a means of reducing the drive for other deleterious instabilities such as TAEs [1], through degraded orbit dynamics (e.g. bounce-tip stochastization). Earlier experiments were carried out on KSTAR with the application RMP fields on bursting TAE modes during early single-beam heated discharges [2]. New experiments have focused on examining the influence of the amplitude and phasing of n=1 fields in similar discharges with high frequency modes in the Alfven frequency range. Such fields are observed to cause a pronounced reduction in amplitude of these modes. However, early application of RMP fields can lead to substantial density pump out and rotation braking, both of which can modify the continuum structure, as well as the ionization rate of beam neutrals. Both indirect and direct effects will be assessed, with a range of fast ion diagnostics including neutron flux monitors. Initial simulations will focus on the continuum structure, 3D equilibrium and particle orbits. Results will help plan experiments on MAST-U. [1] M Garcia-Munoz et al 2019 PPCF 61 054007 [2] M.J. Hole et al PPCF 61 (2019) 025016

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