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Analysis of energetic particle induced long-lived modes in HL-2A tokamak¹ XIAOGANG WANG, Peking University, XIANQU WANG, Dalian University of Technology — The effect of energetic particle on long-lived modes observed in HL-2A plasmas is investigated. The marginal stable pressure-driven ideal MHD mode on the $q = 1$ rational surface is found driven by energetic particles generated during NBI. The dispersion relation of the mode is then derived for different magnetic shear. By analyzing the dispersion relation, we find that the ion diamagnetic drift play a major destabilizing role on the long-lived mode. The numerical analysis is also compared with observation on HL-2A.

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