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Sawtooth activities in the Ohmic heated J-TEXT plasmas XIANDE FENG, GE ZHUANG, XIAOQING ZHANG, STATE KEY LAB OF ADVANCED ELECTROMAGNETIC ENGINEERING AND TECHNOLOGY, HUAZHONG UNI OF SCI &TECH TEAM, KEY LABORATORY OF FUSION AND ADVANCED ELECTROMAGNETIC TECHNOLOGY OF MINISTRY OF EDUCATION, WUHAN TEAM — Benefiting from a few powerful analyzing tools to manipulate the measured data by a set of soft X-ray emission detector arrays (SXRs) on the J-TEXT tokamak (Formerly TEXT-U tokamak, Bt=3T, and Ip=350kA), the sawtooth behaviors such as period and inverse radius can be carefully excavated under different discharge parameters. Especially, the transition between sawteeth and Mirnov oscillations, which have been clearly shown in the traces of SXRs and magnetic sensors on J-TEXT, can be interpreted based on some numerical simulation results, such as the anti-correlation effect. Furthermore, some discharges ended with a disruption, along with this transition strong coupling between the m=1 and m=2 MHD modes could be the main mechanism leading to the disruption. In addition to these events, the experimental observations manifest there is a concurrence of sawtooth and Mirnov oscillations in some discharges, whereby the sawtooth collapse is evidently independent of the m=1 oscillation. The investigation of stimulation of sawtooth phase changing in all SXR channels in case of neon gas puffing is undertaking.

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