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Recent progress of the Laser-driven Ion-beam Trace Probe[1] XIAOYI YANG, CHIJIE XIAO, YIHANG CHEN, TIANCHAO XU, Peking University, YI YU, University of Science and Technology of China, MIN XU, Southwestern Institute of Physics, LONG WANG, Chinese Academy of Sciences, CHEN LIN, Peking University, XIAOGANG WANG, Harbin Institute of Technology — The Laser-driven Ion-beam Trace Probe (LITP) is a new method to diagnose the poloidal magnetic field and radial electric field in tokamaks [1, 2]. Recently significant progresses have been made as follows. 1) The experimental system has been set up on the PKU Plasma Test (PPT) linear device and begun to validate the principle of LITP, including the ion source, the ion detector and the poloidal magnetic field cable. Preliminary experimental results matched the theoretical prediction well. 2) The reconstruction principle has been improved including the nonlinear effect [3]. 3) Tomography methods have been applied in the reconstruction codes. Now the laser-driven ion-beam accelerator has been setup on the PPT device, and further test of LITP will start soon. After that a prototype of LITP system will be designed and setup on the HL-2A tokamak device. [1] Yang et al. Rev. Sci. Instrum. 85(11), 11E429 (2014). [2] Yang et al. Rev. Sci. Instrum. 87(11), 11D610 (2016). [3] Yang et al. JINST submitted.

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