

1st Asia-Pacific Conference on Plasma Physics, 18-23, 09.2017, Chengdu, China

Research of Blob Turbulence in SOL with Newly Developed Gas Puff Imaging Diagnostic on HL-2A Tokamak

B.D.Yuan^{1,2}, M.Xu², Y.Yu¹, L. G.Zang², R.J.Hong³, C.Y.Chen², Z.H.Wang², L.Nie², R.Ke², D.Guo², Y.F.Wu^{1,2}, T.Long², M.Y.Ye¹, X.R.Duan² and HL-2A team²

¹School of Nuclear Science and Technology, USTC, Hefei, China

²Southwestern Institute of Physics, Chengdu, China

³Center for Energy Research, University of California, San Diego, United States

ABSTRACT: A new gas-puff imaging (GPI) diagnostic system has been developed on HL-2A tokamak to study two-dimensional (2-D) plasma turbulence in poloidal vs radial plane. During the latest campaign in 2017, the new diagnostic was put into service under several ohmic discharges, and successfully captured blob structures of different sizes and shapes in

SOL region. The brightness and contrast on the 2-D frames reveal the structures and movements of the blobs on poloidal vs radial plane. From the continuous frames, the typical scales and velocities in both radial and poloidal directions are calculated statistically and compared with the results of Langmuir probe measurements under similar discharges.

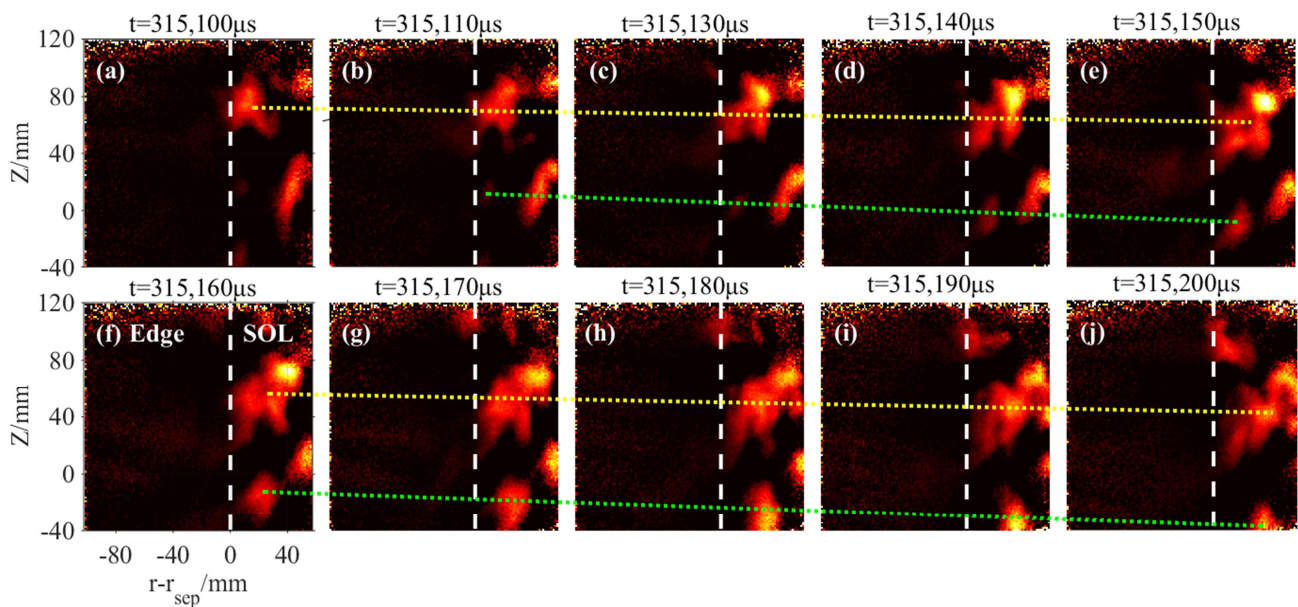


Fig.1 10 continuous frames of shot No.31886 show two blob structures of different sizes and shapes move in SOL region. The small one keeps pace with the large one in radial direction but moves faster downward in poloidal direction