# Simulation Study on Non-local Transport by Plasma Blob in SOL

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The non-diffusive radial transport in the Scrape of Layer (SOL) is investigated using the 2D SOL interchange turbulence simulation code, which reproduces plasma blobs[1]. From the nonlinear simulations, it is found that the meso-scale convective cells emerge from interchange instabilities and propagate in the radial direction. The structures are formed by the inverse cascade of the convective turbulence autonomously. It is found that the blob size in nonlinear regime is determined by the competition between SOL interchange mode and K.H. mode. Namely, the blob size roughly agrees with the scale size which determines the boundary between K. H. mode and interchange mode[2]. Based on this phenomenon, the radial propagation velocity of the blob structure and the effective SOL radial convective transport velocity are compared. They agree with each other. The effective transport coefficient is also observed and the Bohm-like dependence is found[3]. It is concluded that the flux-driven turbulence in SOL, induces Bohm-like 'non-diffusive' transport. The statistical nature of blob transport is also discussed.

References

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