

## **Kinetic effects on edge pedestal and their implications for experimental investigations<sup>a)</sup>**

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Overview of kinetic effects on edge pedestal will be given, making connections with experimental observables. Kinetic effects, whether neoclassical or turbulent, are expected to play important roles in understanding edge pedestal physics. Some critical edge phenomena are difficult to understand without invoking kinetic physics. Discussions will include the orbit loss physics induced by X-point geometry, radial electric field generation, flow generation, electrostatic confinement and steepening of plasma gradient, neutral kinetics, ion temperature gradient mode turbulence, trapped electron mode, electron temperature gradient mode, kinetic ballooning mode, zonal flow and GAMs, non-local interactions, interplay with inner core and scrape-off plasmas, impurity transport, non-Maxwellian nature, and stochastic field and 3D kinetic effects. Numerical illustrations will be given. Needed areas for future theoretical/numerical studies will be emphasized for experimental validation and ITER prediction.

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