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**Shock formation induced by poloidal flow and its effects on the edge stability in tokamaks** JAECHUN SEOL, National Fusion Research Institute, KERCHUNG SHAING, National Cheng Kung University, AHMET AYDEMIR, National Fusion Research Institute — In the high confinement mode of tokamaks, magnitude of the radial electric field increases at the edge. Thus, the poloidal flow inside the transport barrier can be sonic when the edge pressure gradient is not steep enough to make the poloidal flow subsonic. When the poloidal Mach number is close to unity, a shock appears in the low field side and causes a large density perturbation. In this study, we describe a shock induced by the sonic poloidal plasma flow. Then, an entropy production across the shock is calculated. Finally, we introduce a simple model for Type III edge localized modes using the poloidal density variation driven by the sonic poloidal flow.

JaeChun Seol  
National Fusion Research Institute

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