Abstract Submitted
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**On 2D modeling of 3D meso-scale structures**[1] K. BODI, S.I. KRASHENINNIKOV, UCSD — Meso-scale structures, driven by curvature and gradB effects, like blobs and ELMs play a very important role in edge and SOL plasma transport in tokamaks. However, modeling of the dynamics of such structures with 3D codes is a very challenging computational problem. Therefore, in recent years different 2D models of such structures have been developed and used intensively (see Ref. 1 and the references therein). Although these 2D models describe many essential features observed in experiments, so far they did not account for the effects related to the inter-connection of "bad" and "good" curvature regions in tokamak. For the case of ballooning modes this effect sets the threshold of ballooning instability. Here we try to mimic the inter-connection of "bad" and "good" curvature regions (which is intrinsically 3D effect) in 2D model by introducing the threshold for the polarization of meso-scale structures based on the gradient of plasma pressure. We study the dynamics of edge plasma density by introducing density source and describing density transport with our modified 2D turbulence model. The results will be presented. [1] S. I. Krasheninnikov, A. I. Smolyakov, G. Yu, and T. K. Soboleva, Czechoslovak Journal of Physics, **55** (2005) 307

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