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Verification of Pedestal / Edge Gyrokinetics DAVID HATCH, MIKE KOTSCHENREUTHER, SWADESH MAHAJAN, PRASHANT VALANJU, XING LIU, Institute for Fusion Studies, University of Texas at Austin, FRANK JENKO, ALEJANDRO BANON NAVARRO, DANIEL TOLD, UCLA, MJ PUESCHEL, University of Wisconsin, Madison, TOBIAS GOERLER, Max Planck Institute for Plasma Physics, CRAIG MICHOSKI, ICES, Univeristy of Texas at Austin — There is an increasing imperative to expand the success of gyrokinetics from the core to the edge region, on which the prospects of fusion energy depend, and where both gyrokinetic codes and models are less established. Various groups have used gyrokinetics to explore the role of several MHD and drift-type mechanisms in edge stability and transport. Moreover, recent work predicts a very unfavorable rho* transport scaling associated with the erosion of shear-suppression. The consequences of such a scaling for are profound and therefore must be tested as rigorously as possible. The pedestal / edge system encompasses regions of parameter space foreign to most core parameter regimes and thus demands verification efforts for a range of modeling capabilities including: extreme gradients; electromagnetic effects in regimes close to MHD limits; extreme shaping and geometry; global effects; high levels of ExB shear; and SOL/sheath physics. We will review recent pedestal work with the GENE code and, in this context, discuss some important preliminary targets for verification in the broader community. Specific, simplified benchmark cases will be proposed in order to address some of these important effects.

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