GTEDGE-2 A new predictive and interpretive edge-boundary transport capability. E.W. DESHAZER, M.D. HILL, W.M. STACEY, Georgia Tech — A new code is being assembled for the tokamak plasma and neutral particle transport in the plasma edge, Scrape-Off Layer (SOL) and divertor. The new code will differ from existing codes by including ion orbit loss of thermalized ions and retaining electromagnetic "pinch" forces in the momentum balance, thus conserving particles, momentum and energy. Edge plasma transport is based on a 1D Flux-Surface Averaged (FSA) transport solution of the extended fluid theory incorporating ion orbit loss and electromagnetic particle pinch [1], with flux surface compression-expansion effects of gradients and Shafranov shift accounted for using the Miller model [2]. SOL-divertor plasma transport is initially based on a 1-D solution of the particle, momentum and energy equations in the core and edge plasma [3]. Neutral particle transport is based on the GTNEUT interface current balance code [4]. Theoretical models for the Code structure, integration and iteration issues are discussed. 1) Nucl. Fusion 57 (2017) 066034; 2) Phys. Plasmas 15 (2008) 122505; 3) Fusion Plasma Physics, Wiley-VCH (2012) sect 14.10; 4) Phys. Plasmas 13 (2006) 062509.

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