Abstract Submitted
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**Paleoclassical Model for Edge $T_e$ Pedestal**[1] J.D. CALLEN, Univ. of Wisconsin, Madison, WI 53706-1609, M.A. MAHDAVI, T.H. OSBORNE, General Atomics, San Diego, CA 92186 — A model is proposed for the edge electron temperature profile $T_e(\rho)$ in high (H) confinement mode, diverted tokamak plasmas based on the paleoclassical model [1] for the minimum possible radial electron heat transport. In the paleoclassical model as one moves inward from the separatrix the electron heat diffusivity first decreases (until $\lambda_e \sim \pi R q$); then it increases moving further inward into the paleoclassical collisional (Alcator-scaling) regime. The $T_e$ profile predictions from the paleoclassical model as one moves inward from the separatrix are: 1) first an increasing $T_e$ gradient with $\eta_e \equiv d \ln T_e / d \ln n_e = 2$, 2) a maximum $|\nabla T_e|$ where $q$ drops to $\sim$ 5–7, 3) then a decreasing $T_e$ gradient, and 4) finally a pedestal electron pressure determined by balancing collisional paleoclassical transport against gyro-Bohm-scaled anomalous electron heat transport, $\beta_e^p \equiv n_e^p T_e^p / (B^2/2\mu_0) \propto a/Rq$, which implies $p_e^p \equiv n_e^p T_e^p \propto B_p B_t$. The relatively favorable omparisons of these paleoclassical model predictions with DIII-D experimental data on H-mode $T_e$ pedestals just before an ELM will be shown.

[1] J.D. Callen, Phys. Plasmas **12**, 092512 (2005).

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