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A Comparison of Measured and Calculated TAE Damping Rates in Alcator C-Mod[1] J. SNIPES, J. SEARS, MIT PSFC, N. GORELENKOV, PPPL — The damping rates of stable moderate toroidal mode number ($3 \leq n \leq 14$) toroidal Alfvén eigenmodes (TAEs) have been measured in C-Mod Ohmic plasmas through synchronous detection of magnetic pick-up coil signals with actively driven antenna current signals in a number of discharge conditions. The measured damping rates are in the range $0.5\% < \gamma/\omega < 4\%$, which are similar to those measured in JET for n=1. In contrast to JET, however, the damping rates are lower for diverted plasmas with relatively high elongation and larger for inner wall limited plasmas with low elongation. Several of these discharges have been modeled with the Nova-K code to calculate the expected damping including continuum, radiative, collisional, and Landau damping. The modeling is found to be very sensitive to the assumed safety factor profile with a $\pm 10\%$ change in q resulting in up to an order of magnitude change in the calculated damping rate. Given this sensitivity, it is possible to get good agreement between the experiment and the modeling for reasonable q profiles. An accurate benchmarking of the code with experiment would require very accurate measurements of the q profile that are presently not available.

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Joseph Snipes
MIT PSFC

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