

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Study of the Temperature Time Evolution of the ECH Launcher Mirror in DIII-D¹ K. KAJIWARA, Oak Ridge Institute for Science Education, C.B. BAXI, J. LOHR, I.A. GORELOV, M.T. GREEN, D. PONCE, R.W. CALLIS, General Atomics — The ECH launchers in the DIII-D tokamak have poloidal and toroidal scan capability with steering provided using movable mirrors. Minimizing eddy current-induced forces on the mirrors while maintaining low loss rf performance presents conflicting design requirements. To solve this problem, a mirror design using a sandwich structure of Glidcop and stainless steel was developed. In order to prevent melting of the surface of the mirror, the mirror temperature is monitored at the back surface. An appropriate thermal model can estimate the actual peak temperature at the front surface by using the monitored temperature. A previous study showed the simulation of the base temperature increase is in agreement with the experiments. However, there has been a discrepancy for the time evolution, which must be resolved to give confidence in the model for the peak surface temperature. The comparison of the time evolution of simulations and experiments will be presented.

¹Work supported by U.S. DOE under DE-AC05-76OR00033 and DE-FC02-04ER54698.

T.S. Taylor
General Atomics

Date submitted: 21 Jul 2005

Electronic form version 1.4