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Analyzing Electron Transport on DIII-D Using the General Form of Heat Pulse Propagation,* N. Howard, *U. of Illinois at Urbana-Champaign,* C.C. Petty, T.C. Luce, J.C. DeBoo, *General Atomics*– The electron temperature's dynamic response to perturbation reveals a more detailed description of electron heat transport than does steady-state analysis. Modulated electron cyclotron heating (ECH) can effectively probe energy transport in plasmas and lends itself to first order perturbation analysis. Fourier analysis transforms the linearized Braginskii equation into an ordinary differential equation with coefficients representing effective values of electron diffusivity, convective velocity, and damping. To account for the interdependencies of these transport coefficients, the general form of the Braginskii equation needs to be retained when fitting the Fourier analyzed electron cyclotron emission (ECE) data. Fitting numerical solutions of heat pulse propagation with the amplitude and phase of all harmonics simultaneously gives a self-consistent determination of the transport coefficients. The results of this analysis will be discussed and compared with those of steady-state solutions.

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