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Molybdenum density profiles on C-Mod using FAC generated cooling curves[1] M. REINKE, I. HUTCHINSON, B. LIPSCHULTZ, J. RICE, J. TERRY, MIT PSFC — For tokamaks with high-Z plasma facing components, maintaining a low impurity content is necessary to produce high quality, repeatable discharges. A GENeral Impurity Emissivity (GENIE) method is outlined for determining impurity profiles using experimental spectroscopy data, an impurity transport code, and the atomic physics package, Flexible Atomic Code (FAC). Modular programming is emphasized in order to make the method extendable to arbitrary impurities, diagnostic sets and tokamaks. Development of GENIE is ongoing, but a necessary first step is to verify FAC. A testing stage of GENIE that ignores transport is demonstrated and the results are validated against the published molybdenum cooling-curve generated using HULLAC. Bolometry and Thomson scattering data are used to determine molybdenum density profiles on Alcator C-Mod using the Mo cooling-curve. Instances where this method fails are shown as well to illustrate the need for a more advanced version of GENIE that generates and uses charge state distributions that assume transport.

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