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Flux Surface Asymmetries in VUV/SXR Emission on Alcator C-Mod[1] MATTHEW REINKE, IAN HUTCHINSON, Massachusetts Institute of Technology — The radiated power loss in many Alcator C-Mod ICRF heated plasmas is dominated by intrinsic molybdenum line emission arising from high-Z plasma facing components. Thus broadband emissivity is approximately proportional to Mo density and can be used to explore its spatial structure. Because of their large mass, Mo ions experience sufficient centrifugal force to sustain parallel impurity pressure gradients, even for C-Mod's modest intrinsic rotation (main-ion Mach numbers up to 0.3). 2D emissivity profiles are presented, calculated using both 50 micron Be-filtered and bare AXUV photodiode data. Slowly rotating L-mode plasmas have nearly uniform radiation patters while H-modes, which rotate faster, are asymmetric with the outboard emissivity 50% higher than inboard. This asymmetry is shown not to scale with core toroidal rotation frequency as predicted by theories that balance parallel pressure gradient, inertia and electric field forces. Impurity-ion friction is shown to be important for high-Z impurities in C-Mod plasmas and experimental data is compared to theories that incorporate this effect.

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