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Optimizing LHCD launcher using poloidal steering on Alcator C-Mod and ADX P. BONOLI, B. LABOMBARD, R. PARKER, S. SHIRAIWA, G. WALLACE, S. WUKITCH, R. LECCACORVI, R. VIEIRA, PSFC, MIT, ALCATOR C-MOD TEAM — The poloidal location of the lower hybrid current drive (LHCD) launcher has a strong influence on the trajectory and absorption of the LH wave (poloidal steering). The physics design of an additional off-midplane launcher (LH3) for Alcator C-Mod exploits this characteristic. By shifting the launcher from the mid-plane by 25cm, it is predicted to realize strong (>80%) single pass absorption localized at about r/a = 0.7 in conjunction with the mid-plane (LH2) antenna. While LH3 is a proposal to overcome the LH density limit and to provide a unique opportunity to validate LHCD simulation codes under reactor-like conditions, poloidal steering can be used more extensively by launching waves from the high field side (HFS). On ADX, the LHCD launcher is proposed to be located on the HFS. Better accessibility due to higher magnetic field allows for using lower $N_{//}$, which results in higher current drive efficiency. Also a more quiescent edge plasma may reduce the effect of $N_{//}$ shifts due to scattering from density fluctuations. LHCD simulations for target plasmas expected on ADX, optimization of poloidal steering, and RF simulation of high field side launcher will be presented. This work supported by USDoE awards DE-FC02-99ER54512 and DE-AC02-09CH11466.

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