Estimate of Divertor Heat Flux

Heat flux to outer divertor plate (0.8 Q_{tot}) well parameterized by

$$q_{peak}\ [MW/m^2] = 51*\sin(\alpha)/(\Delta*f_{flux})$$

where Δ = power flux SOL width, $\mathbf{f_{flux}}$ = flux expansion

α = angle of incidence of separatrix at target plate in poloidal plane

P_{in}=6 MW, P_{rad}/P_{in}=0.3

Assume Δ = 1 cm (Bohm transport in SOL)

- Consistent with START DN, conservative for ND

For NSTX, low l_i-high l_i,

DN X-point	f_{flux} ~ 2.5-5	α ~ 45°-60°
Natural Divertor	5-10	45°