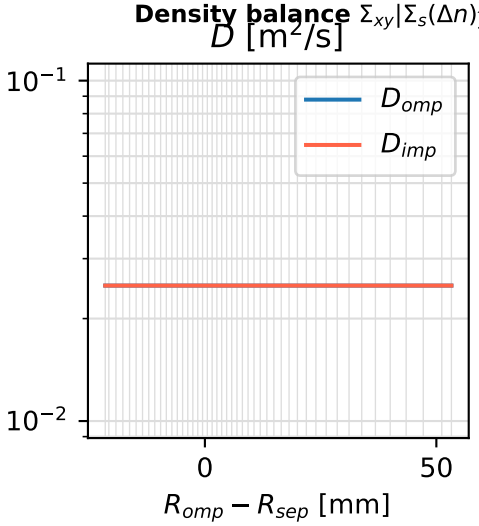
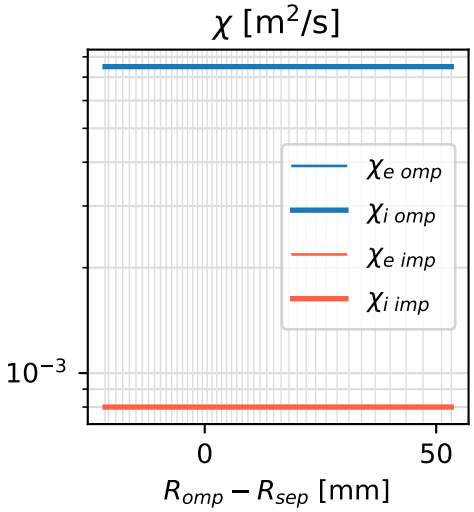
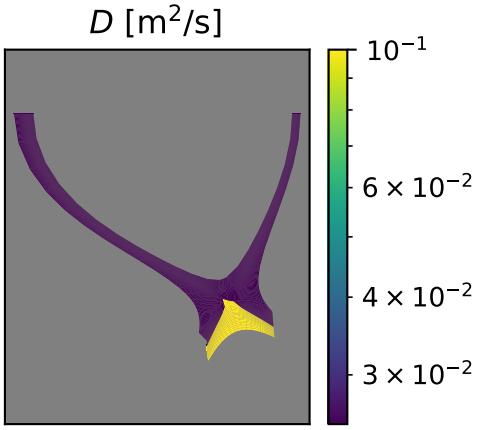
Run label Cn1_5e20_P25_imp13e3
Path /home/millerma/arcnt_uedge/final_baseline
Plots created 01:05 PM Sat 16 Dec 2023
UEDGE version 7.0.9.2.2

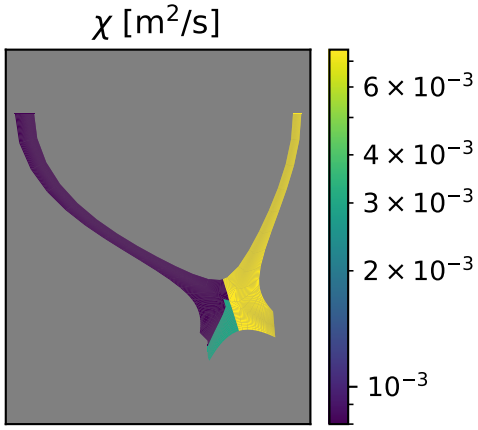
Grid nx = 64, ny = 44, 0 cells are invalid polygons
Core n_i fixed uniform 1.5e+20 m^{-3}
Core n_n set loc flux = -(1-albedoc)*ng*vtg/4
Core T_e, T_i or P_e, P_i fixed P_e = 6.25 MW, P_i = 6.25 MW
Core ion $v_\parallel$ (up) d(up)/dy = 0 at core boundary
Uniform coeffs D = 0 m^2/s, χ_e = 0 m^2/s, χ_i = 0 m^2/s
CF wall T_e extrapolated
PF wall T_e fixed 2 eV
CF wall T_i extrapolated
PF wall T_i fixed 2 eV
CF wall n_i extrapolated
PF wall n_i fixed 1e+18 m^{-3}
Flux limits unknown
Recycling coefficient 1 (plates), 1 (walls)
Neutral model inertial neutrals
Impurity Z 10
Impurity model fixed-fraction model
Impurity fraction spatially varying (mean = 0.0013, std = 4.79e-19, min = 0.0013, max = 0.0013)
Potential equation off

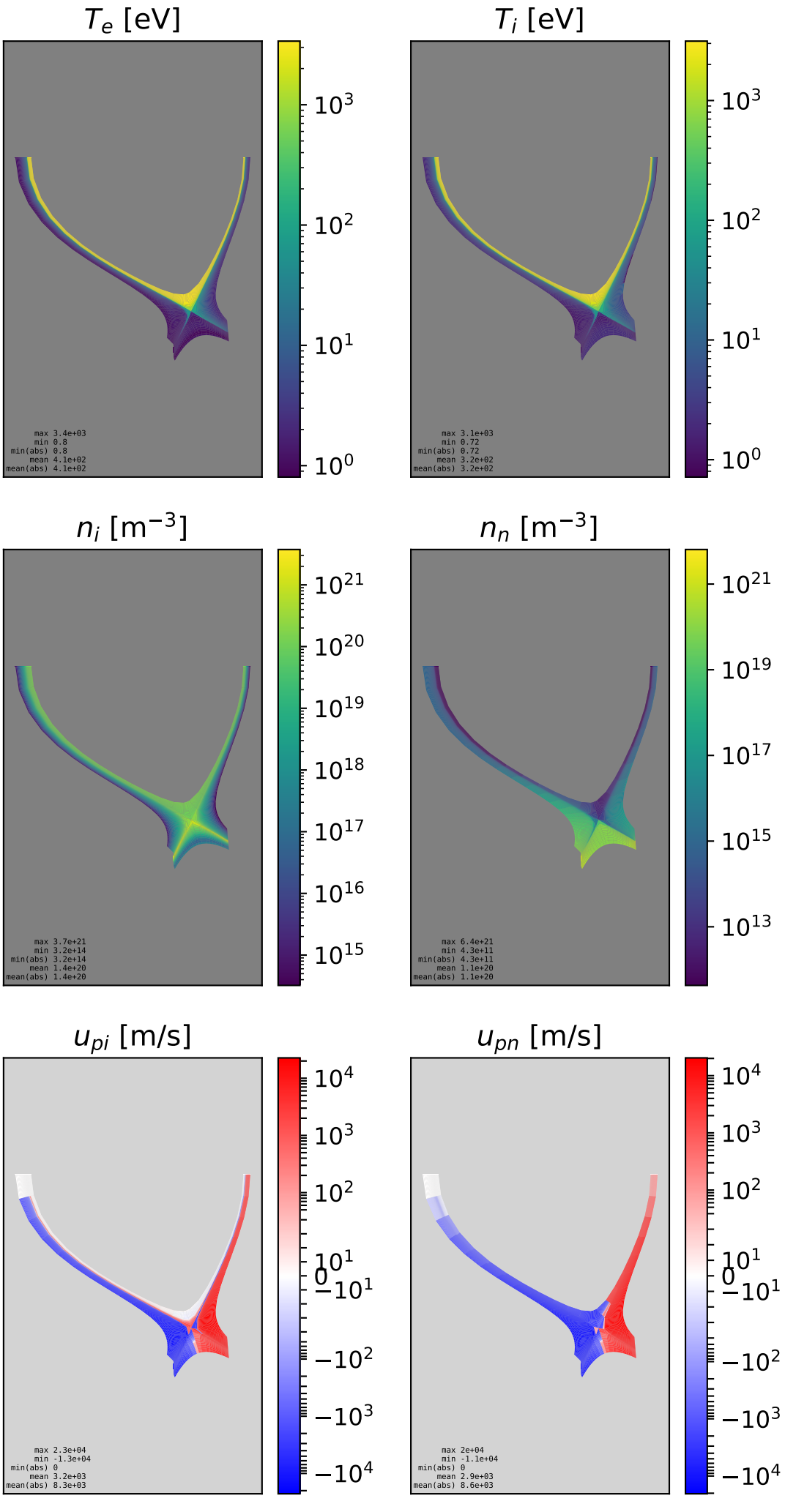
Converged yes, sim. time 0 s
Field line angle 2.76° inner target, 5.36° outer target
Separatrix n_i = 9.2e+19 m^{-3}, n_n = 4e+12 m^{-3}, T_i = 402 eV, T_e = 520 eV
Outer PF corner p_n 150 Pa
Power sharing 1:2.2, $P_{LCFS\ inboard}$ = 3.8 MW, $P_{LCFS\ outboard}$ = 8.6 MW
$P_{rad\ imp}$ P_{tot} = 4.4 MW, P_{xpt} = 0.9 MW, P_{ileg} = 0.9 MW, P_{oleg} = 2.2 MW,
$P_{main\ chamber\ SOL}$ = 0.55 MW, P_{core} = 0.031 MW
Power balance P_{loss} = 14 MW = P_{core}+9.8%
(P_{IT} = 1.6 MW, P_{OT} = 5.2 MW, P_{CFW} = 0.064 MW, P_{PFW} = -0.33 MW, P_H = 3.2 MW, P_I = 4.4 MW)
Density balance $\Sigma_{xy}|\Sigma_s(\Delta n)_s^{xy}|/\Sigma_{xy}\Sigma_s|(\Delta n)_s^{xy}|$ = 1.3e-08%

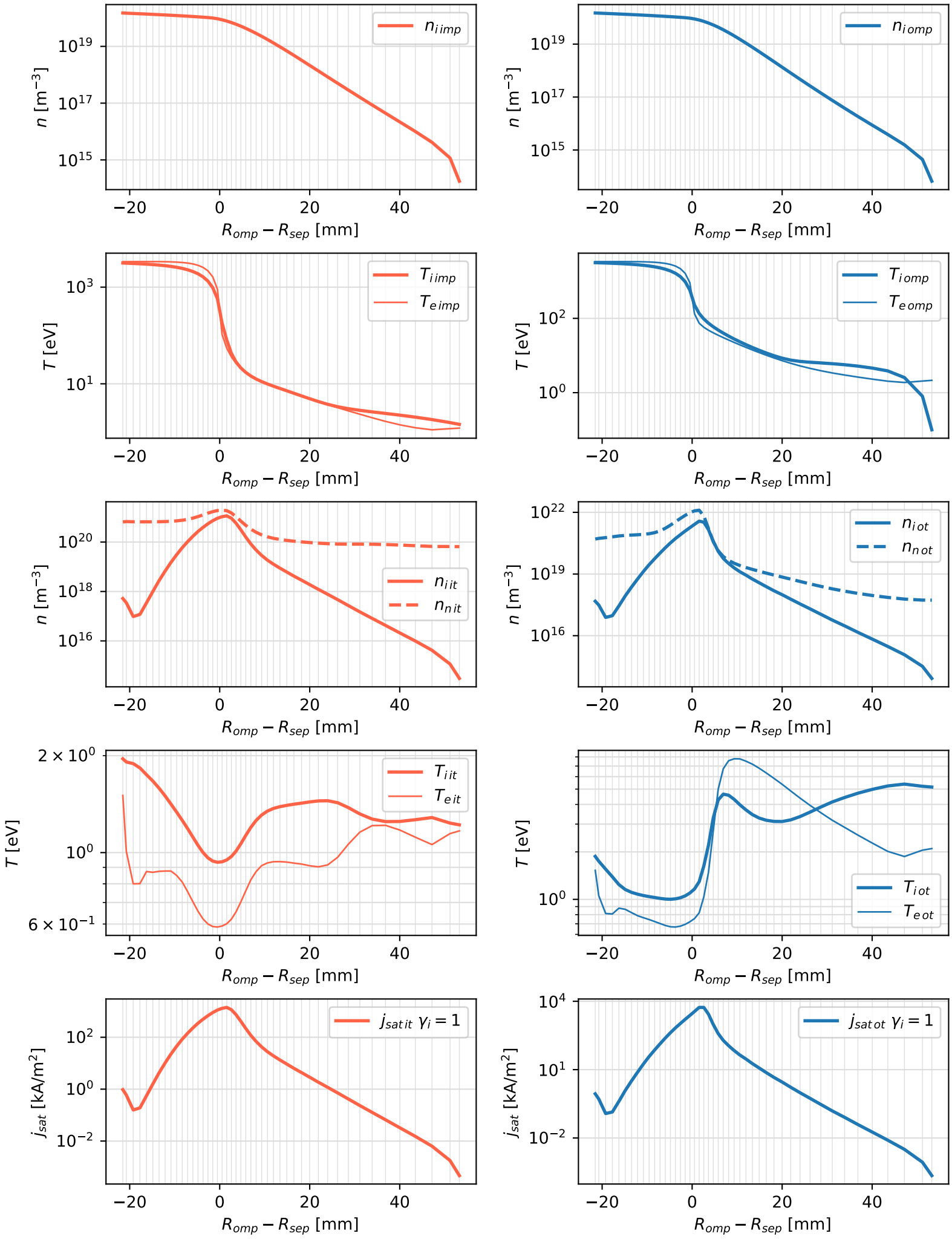


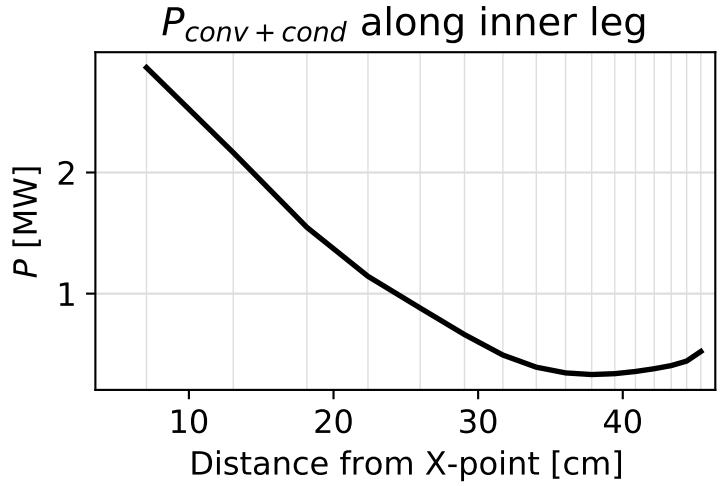


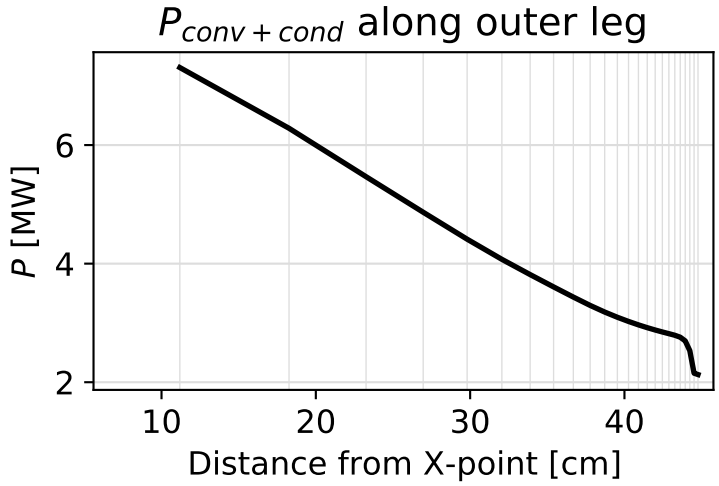


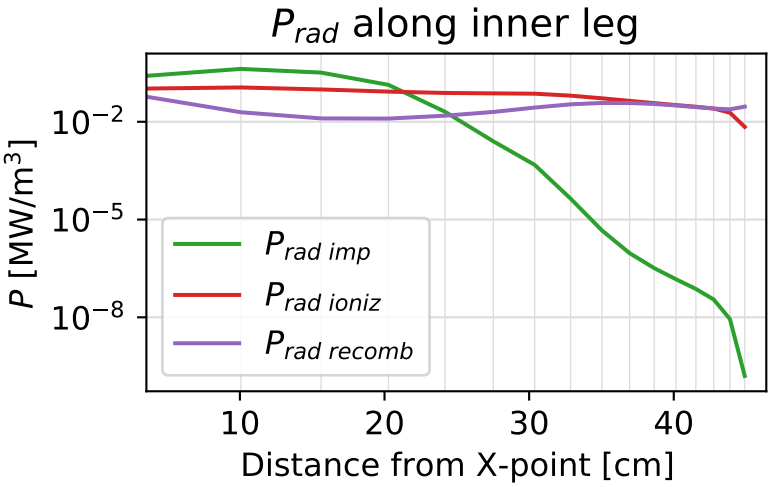


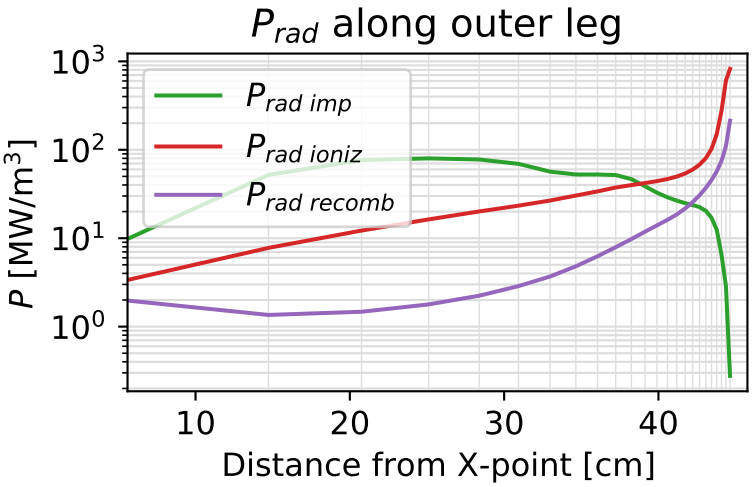

T_e [eV]
max 3.4e+03
min 0.8
min(abs) 0.8
mean 4.1e+02
mean(abs) 4.1e+02
10^3
10^2
10^1
10^0
T_i [eV]
max 3.1e+03
min 0.72
min(abs) 0.72
mean 3.2e+02
mean(abs) 3.2e+02
10^3
10^2
10^1
10^0
n_i [m^{-3}]
max 3.7e+21
min 3.2e+14
min(abs) 3.2e+14
mean 1.4e+20
mean(abs) 1.4e+20
10^{21}
10^{20}
10^{19}
10^{18}
10^{17}
10^{16}
10^{15}
n_n [m^{-3}]
max 6.4e+21
min 4.3e+11
min(abs) 4.3e+11
mean 1.1e+20
mean(abs) 1.1e+20
10^{21}
10^{19}
10^{17}
10^{15}
10^{13}
u_{pi} [m/s]
max 2.3e+04
min -1.3e+04
min(abs) 0
mean 3.2e+03
mean(abs) 8.3e+03
10^4
10^3
10^2
10^1
0
-10^1
-10^2
-10^3
-10^4
u_{pn} [m/s]
max 2e+04
min -1.1e+04
min(abs) 0
mean 2.9e+03
mean(abs) 8.6e+03
10^4
10^3
10^2
10^1
0
-10^1
-10^2
-10^3
-10^4

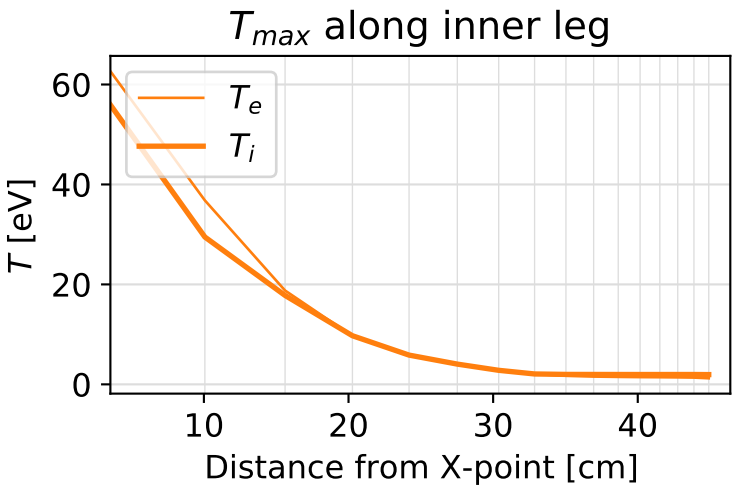

n_{iimp}
n [m^{-3}]
10^{19}
10^{17}
10^{15}
−20
0
20
40
$R_{omp} - R_{sep}$ [mm]
n_{iomp}
T_{iimp}
T_{eimp}
T [eV]
10^{3}
10^{1}
T_{iomp}
T_{eomp}
10^{2}
10^{0}
n_{iit}
n_{nit}
10^{20}
10^{18}
10^{16}
n_{iot}
n_{not}
10^{22}
10^{19}
10^{16}
T_{iit}
T_{eit}
2×10^{0}
10^{0}
6×10^{-1}
T_{iot}
T_{eot}
j_{satit} $\gamma_i = 1$
j_{sat} [kA/m^2]
10^{2}
10^{0}
10^{-2}
j_{satot} $\gamma_i = 1$
10^{4}
10^{1}
10^{-2}

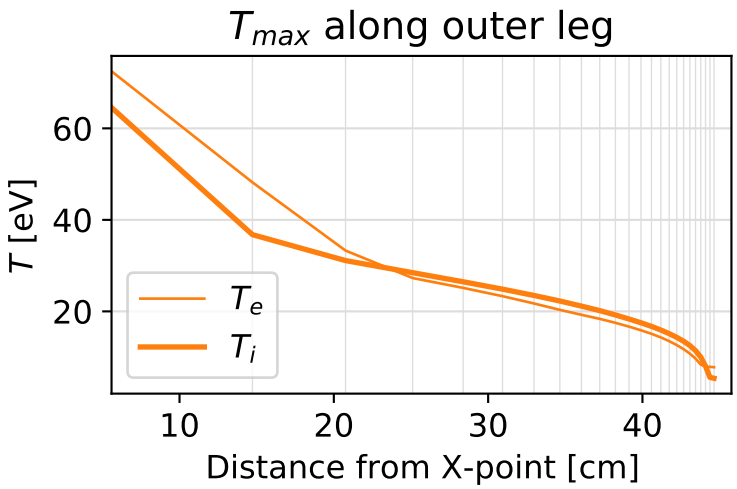

$P_{conv+cond}$ along inner leg
P [MW]
Distance from X-point [cm]

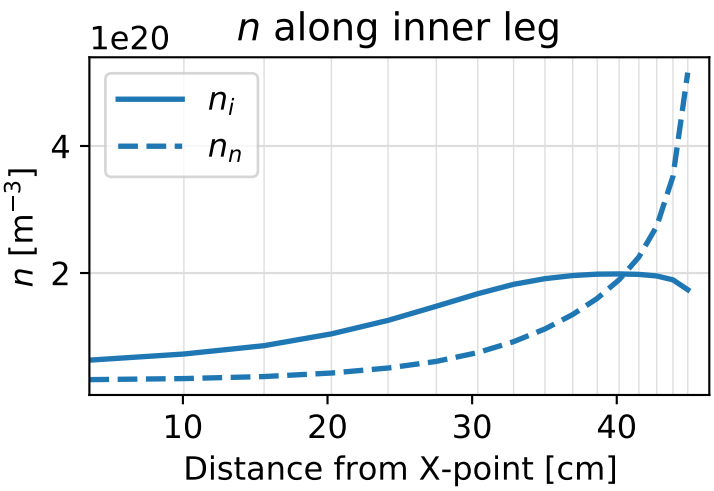

$P_{conv+cond}$ along outer leg
P [MW]
Distance from X-point [cm]

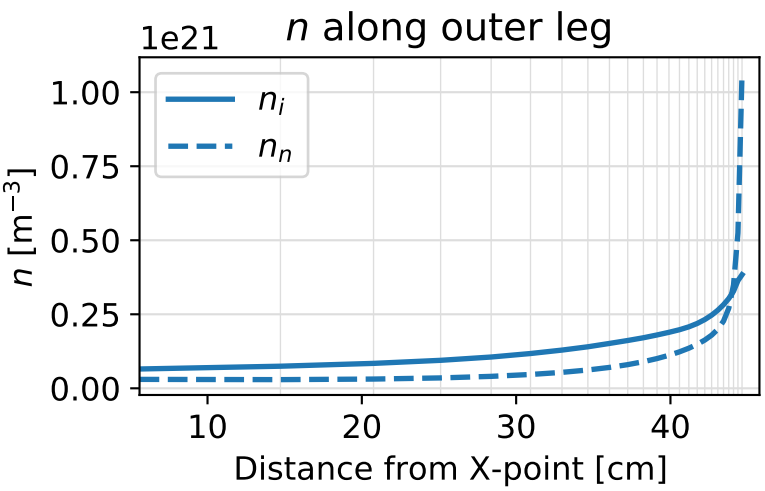

P_{rad} along inner leg
P [MW/m^3]
$P_{rad\ imp}$
$P_{rad\ ioniz}$
$P_{rad\ recomb}$
Distance from X-point [cm]

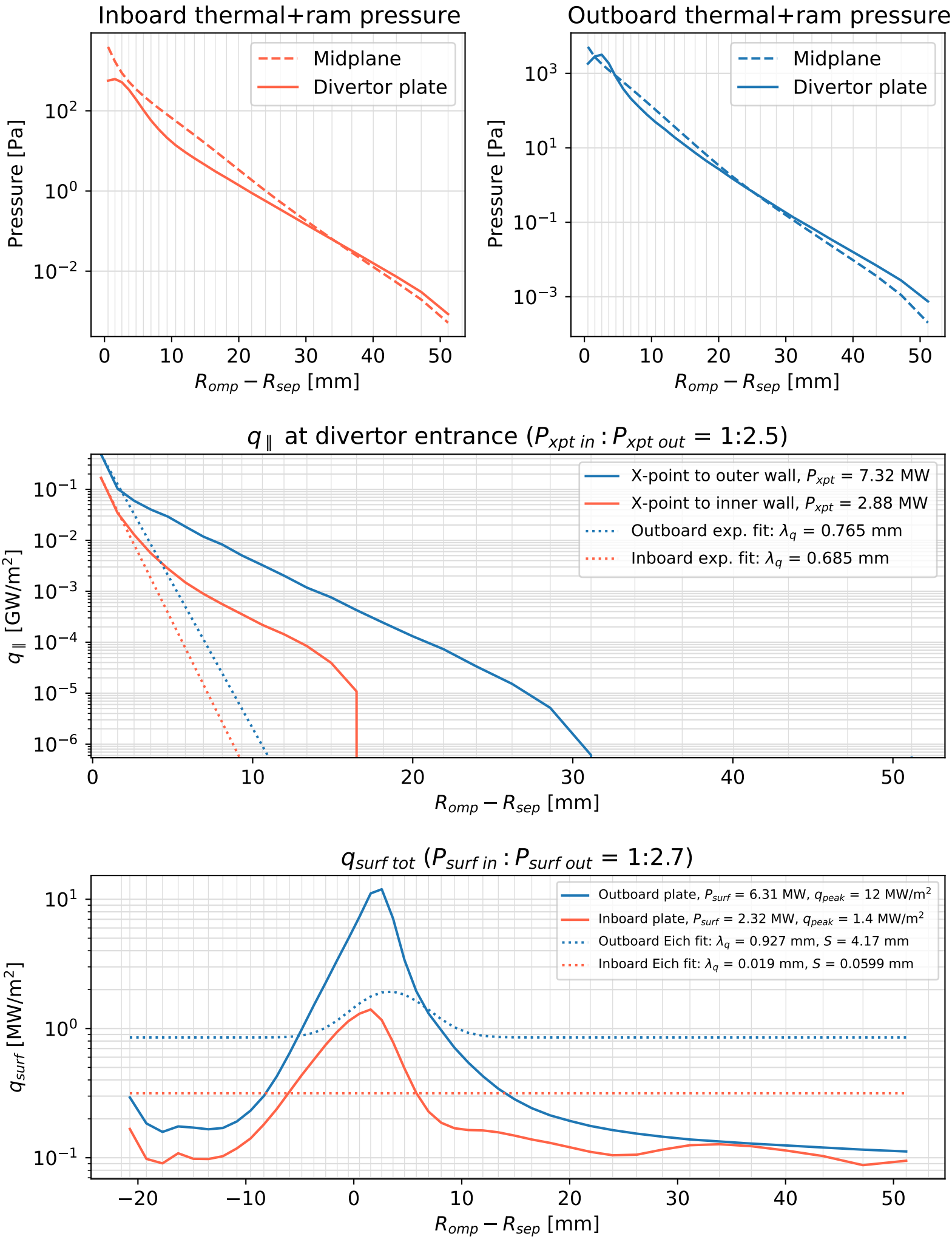

P_{rad} along outer leg
P [MW/m^3]
$P_{rad\ imp}$
$P_{rad\ ioniz}$
$P_{rad\ recomb}$
Distance from X-point [cm]

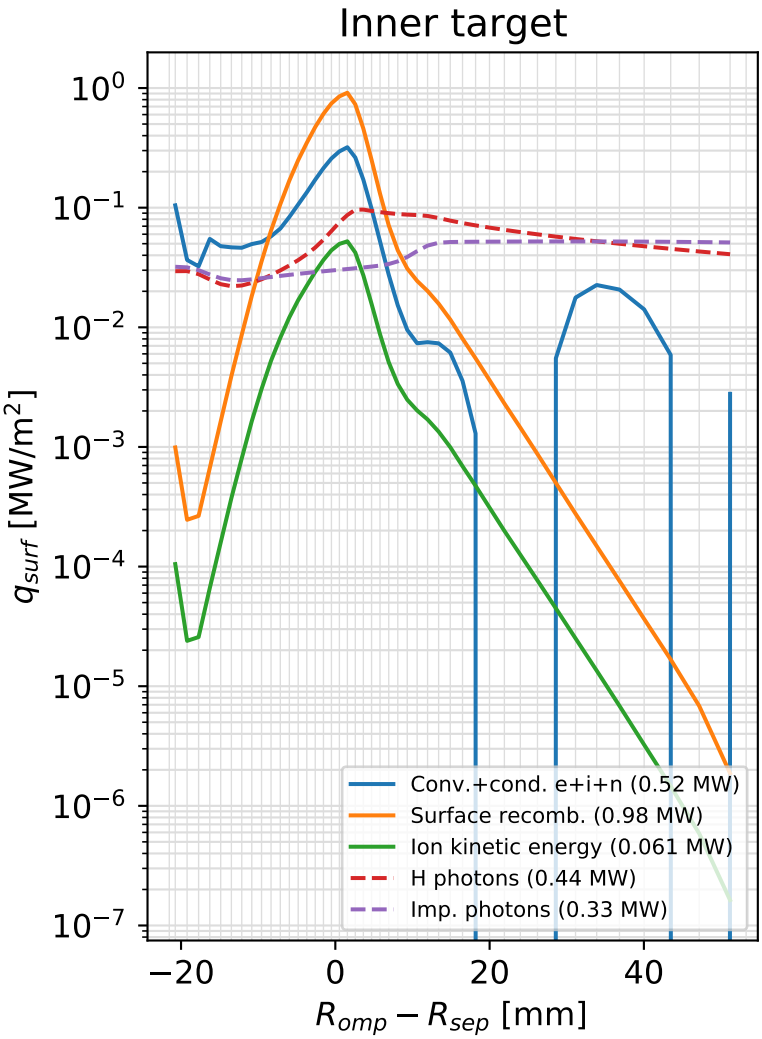

T_{max} along inner leg
T [eV]
T_e
T_i
Distance from X-point [cm]

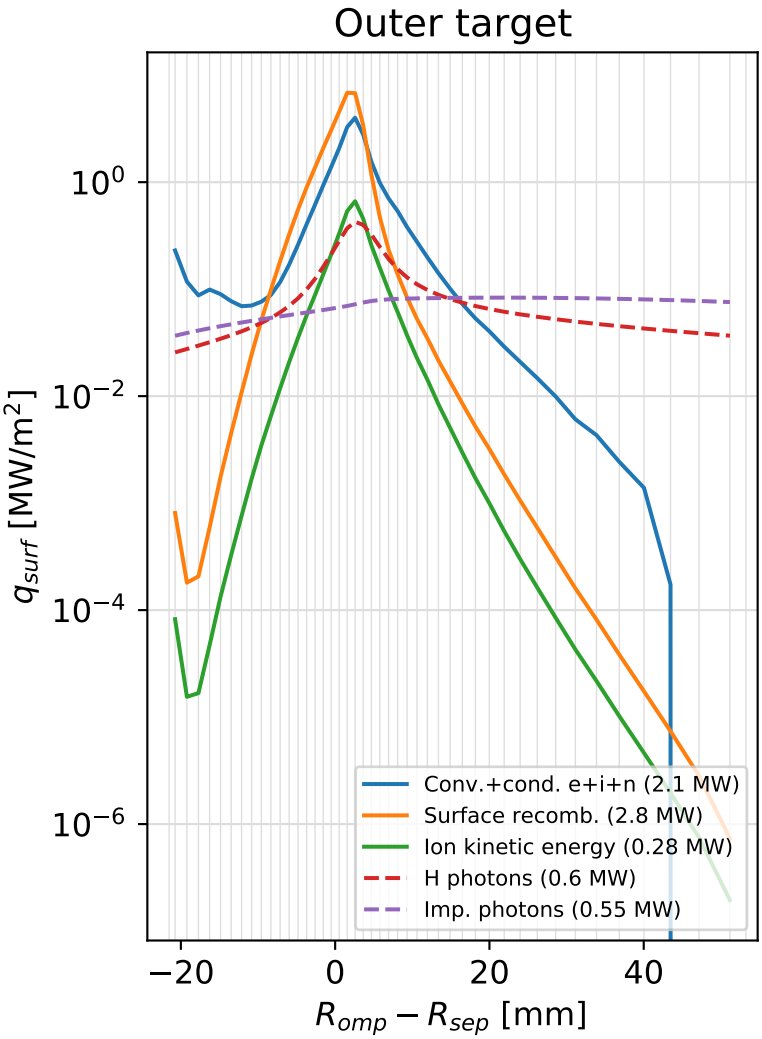

T_{max} along outer leg
T [eV]
T_e
T_i
Distance from X-point [cm]

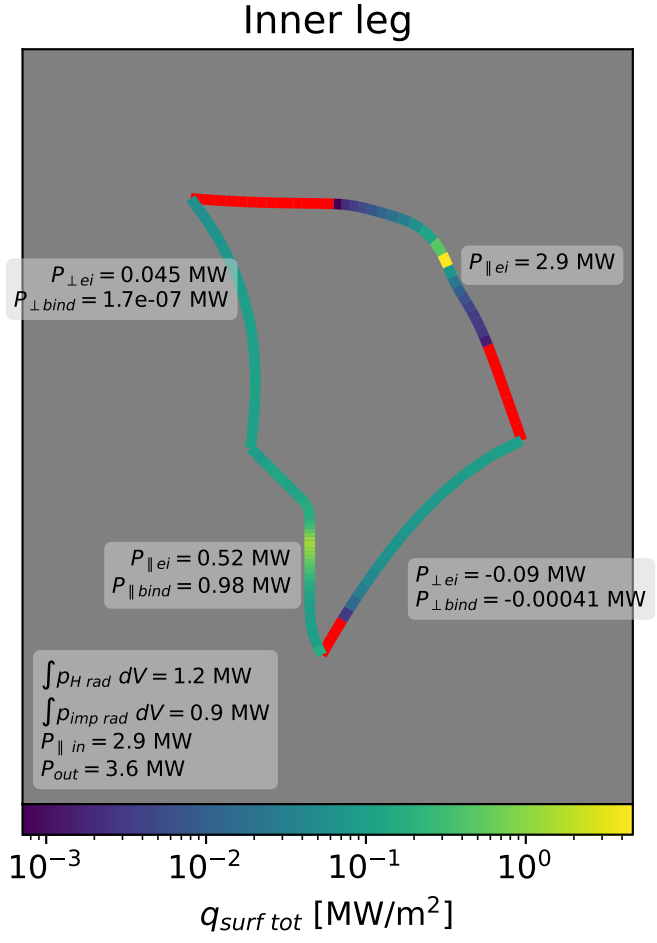

1e20
n along inner leg
n [m^{-3}]
n_i
n_n
Distance from X-point [cm]

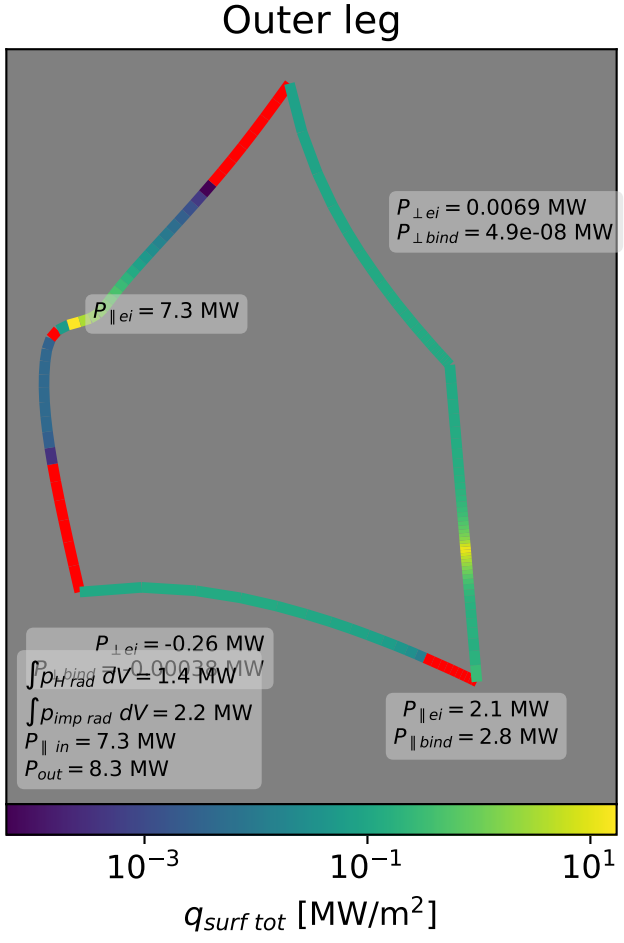

1e21
n along outer leg
n [m^{-3}]
n_i
n_n
Distance from X-point [cm]


Inboard thermal+ram pressure
Midplane
Divertor plate
Pressure [Pa]
10^{2}
10^{0}
10^{-2}
0
10
20
30
40
50
$R_{omp} - R_{sep}$ [mm]
Outboard thermal+ram pressure
Midplane
Divertor plate
Pressure [Pa]
10^{3}
10^{1}
10^{-1}
10^{-3}
0
10
20
30
40
50
$R_{omp} - R_{sep}$ [mm]
$q_{\parallel}$ at divertor entrance ($P_{xpt\ in} : P_{xpt\ out}$ = 1:2.5)
X-point to outer wall, P_{xpt} = 7.32 MW
X-point to inner wall, P_{xpt} = 2.88 MW
Outboard exp. fit: λ_q = 0.765 mm
Inboard exp. fit: λ_q = 0.685 mm
$q_{\parallel}$ [GW/m^2]
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
0
10
20
30
40
50
$R_{omp} - R_{sep}$ [mm]
$q_{surf\ tot}$ ($P_{surf\ in} : P_{surf\ out}$ = 1:2.7)
Outboard plate, P_{surf} = 6.31 MW, q_{peak} = 12 MW/m^2
Inboard plate, P_{surf} = 2.32 MW, q_{peak} = 1.4 MW/m^2
Outboard Eich fit: λ_q = 0.927 mm, S = 4.17 mm
Inboard Eich fit: λ_q = 0.019 mm, S = 0.0599 mm
q_{surf} [MW/m^2]
10^{1}
10^{0}
10^{-1}
−20
−10
0
10
20
30
40
50
$R_{omp} - R_{sep}$ [mm]

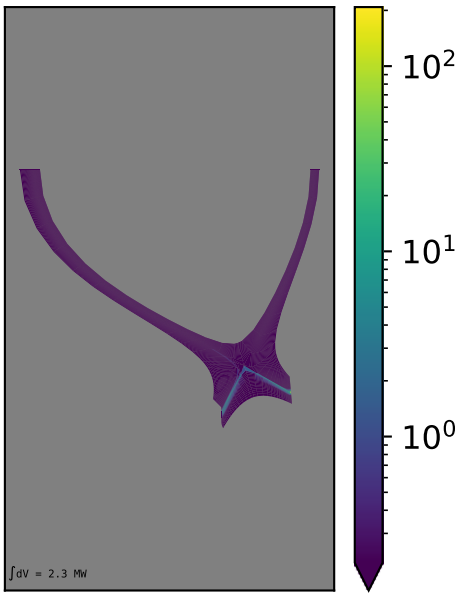

Inner target
q_{surf} [MW/m^2]
$R_{omp} - R_{sep}$ [mm]
Conv.+cond. e+i+n (0.52 MW)
Surface recomb. (0.98 MW)
Ion kinetic energy (0.061 MW)
H photons (0.44 MW)
Imp. photons (0.33 MW)


Outer target
q_{surf} [MW/m^2]
$R_{omp} - R_{sep}$ [mm]
Conv.+cond. e+i+n (2.1 MW)
Surface recomb. (2.8 MW)
Ion kinetic energy (0.28 MW)
H photons (0.6 MW)
Imp. photons (0.55 MW)

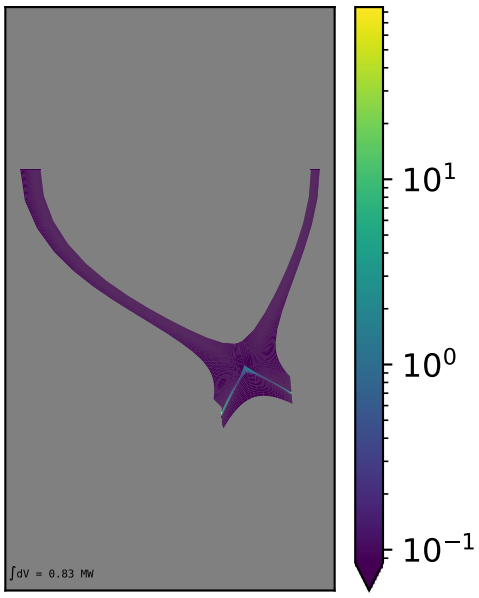

Inner leg
$P_{\perp ei}$ = 0.045 MW
$P_{\perp bind}$ = 1.7e-07 MW
$P_{\parallel ei}$ = 2.9 MW
$P_{\parallel ei}$ = 0.52 MW
$P_{\parallel bind}$ = 0.98 MW
$P_{\perp ei}$ = -0.09 MW
$P_{\perp bind}$ = -0.00041 MW
$\int p_{H\ rad}\ dV$ = 1.2 MW
$\int p_{imp\ rad}\ dV$ = 0.9 MW
$P_{\parallel\ in}$ = 2.9 MW
P_{out} = 3.6 MW
$q_{surf\ tot}$ [MW/m^2]


Outer leg
$P_{\perp ei}$ = 0.0069 MW
$P_{\perp bind}$ = 4.9e-08 MW
$P_{\parallel ei}$ = 7.3 MW
$P_{\perp ei}$ = -0.26 MW
$\int p_{H\ rad}\ dV$ = 1.4 MW
$\int p_{imp\ rad}\ dV$ = 2.2 MW
$P_{\parallel\ in}$ = 7.3 MW
P_{out} = 8.3 MW
$P_{\parallel ei}$ = 2.1 MW
$P_{\parallel bind}$ = 2.8 MW
$q_{surf\ tot}$ [MW/m^2]

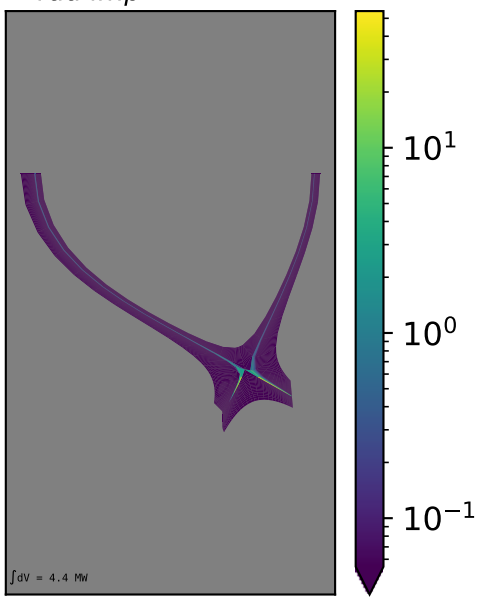
$P_{rad\ ioniz}$ [MW/m^3]



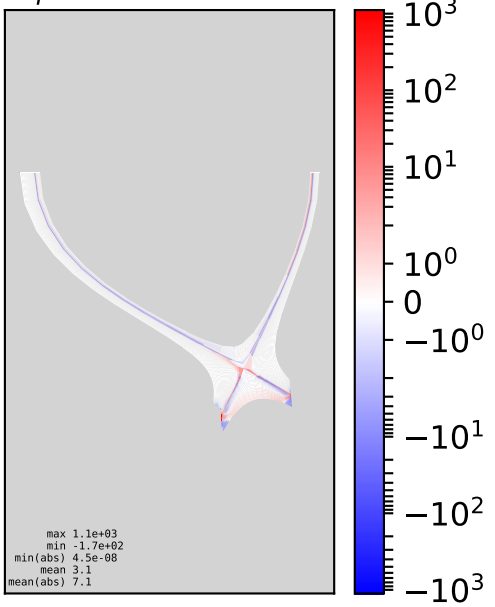
$P_{rad\ recomb}$ [MW/m^3]



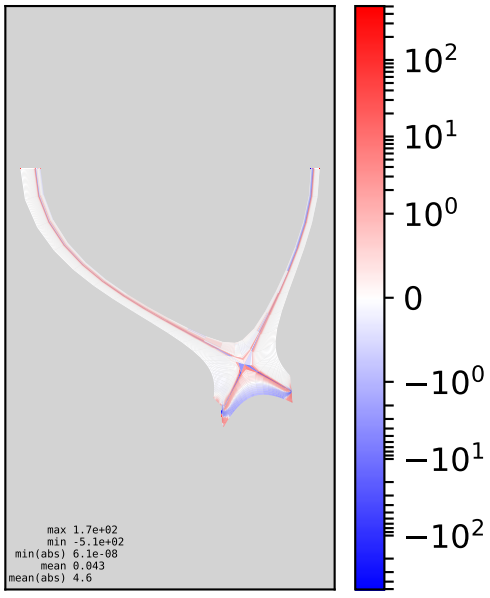
$P_{rad\ imp}$ [MW/m^3]



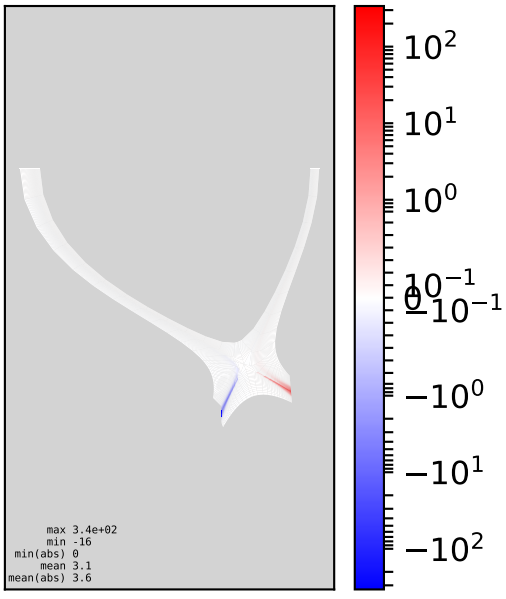
$P_{poloidal}$ [MW/m^3]



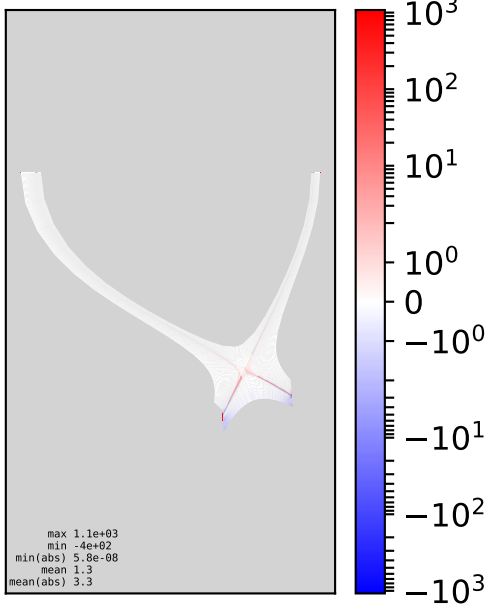
P_{radial} [MW/m^3]



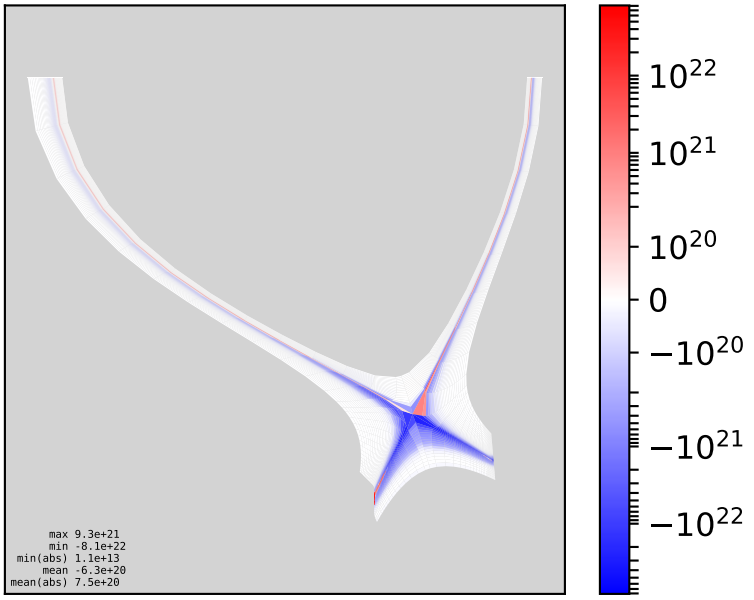
$P_{ion\ KE}$ [MW/m^3]



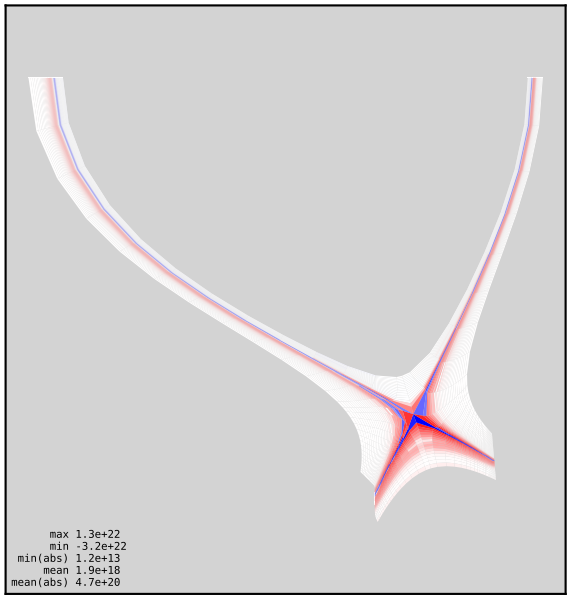
Power balance [MW/m^3]

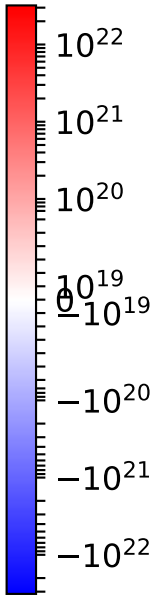


Poloidal source [s^{-1}]

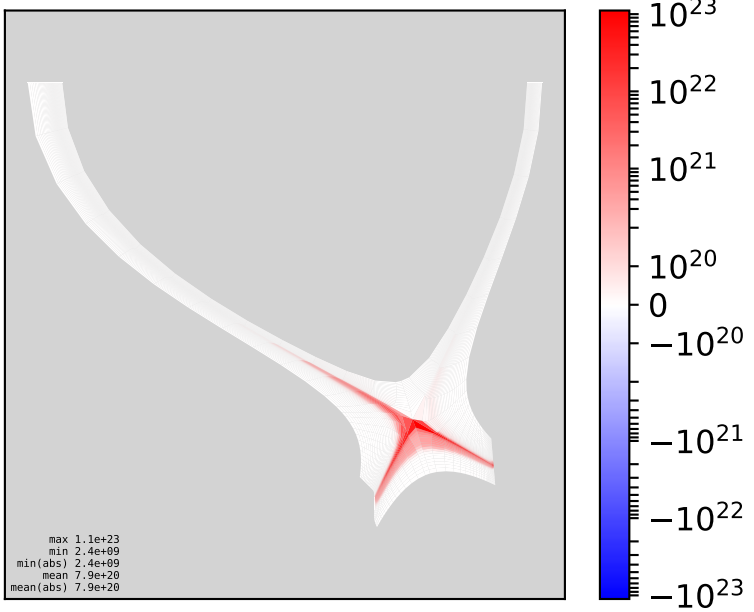


Radial source [s^{-1}]

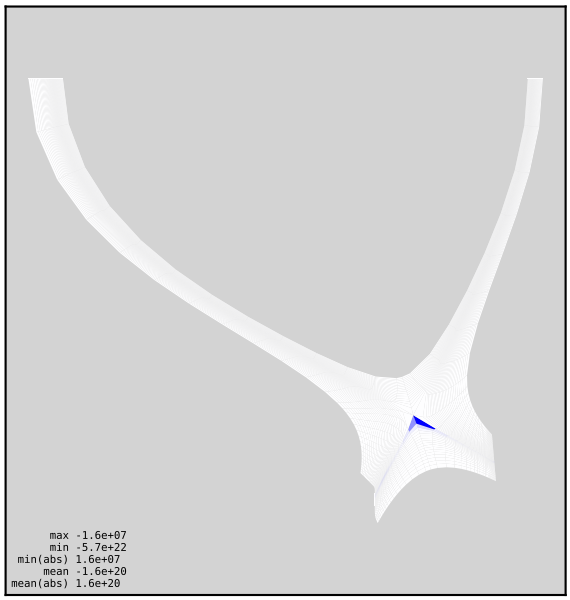


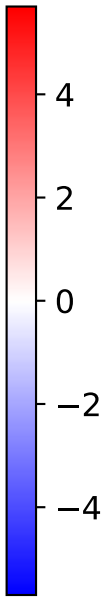


Ionization source [s^{-1}]

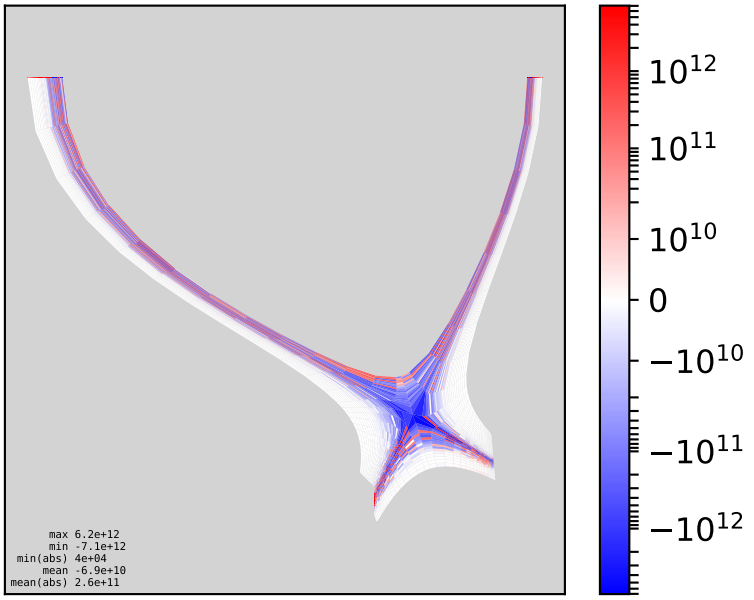


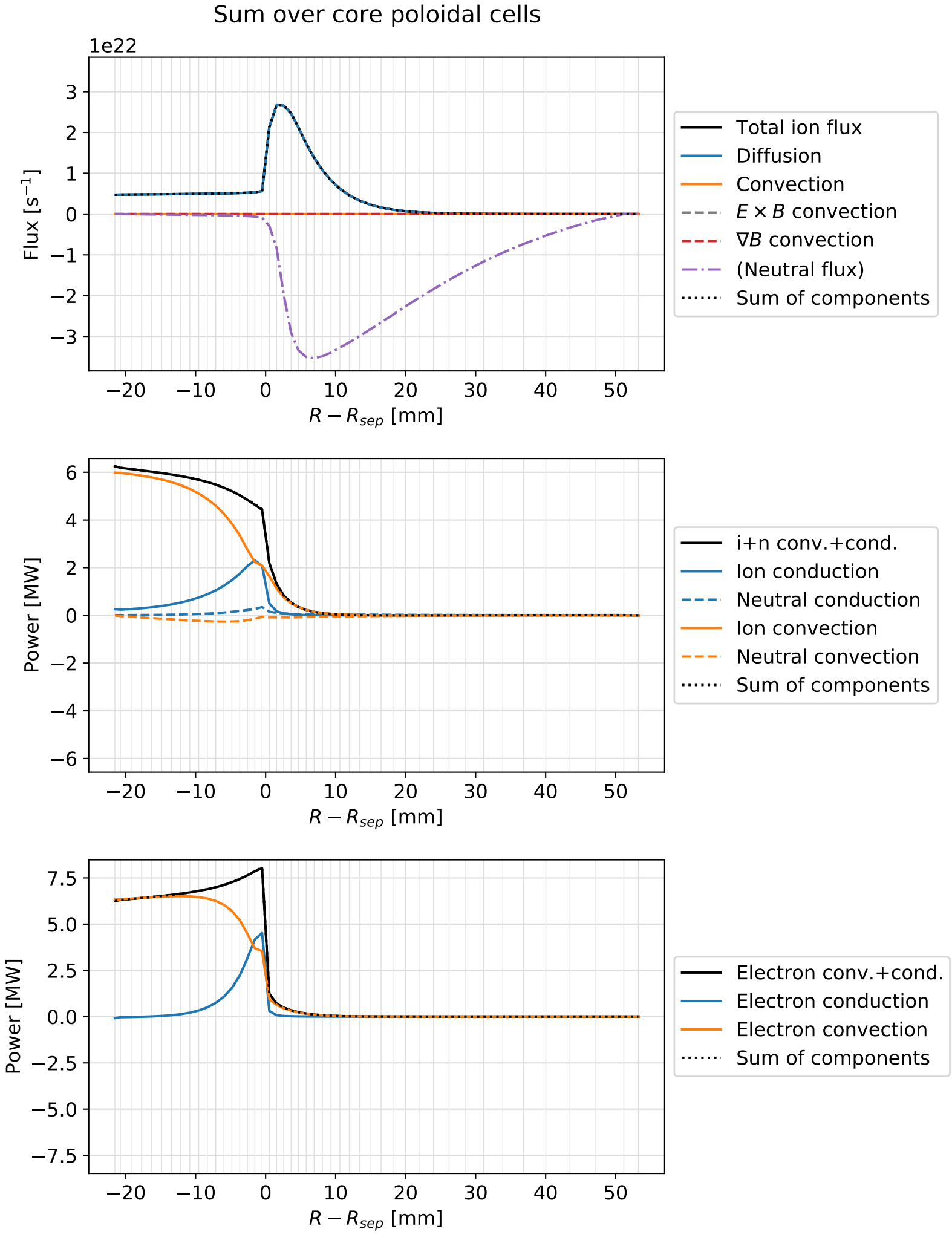
Recombination source [s^{-1}]





Particle balance [s^{-1}]




Sum over core poloidal cells
1e22
Flux [s^{-1}]
$R - R_{sep}$ [mm]
Total ion flux
Diffusion
Convection
$E \times B$ convection
∇B convection
(Neutral flux)
Sum of components
Power [MW]
$R - R_{sep}$ [mm]
i+n conv.+cond.
Ion conduction
Neutral conduction
Ion convection
Neutral convection
Sum of components
Power [MW]
$R - R_{sep}$ [mm]
Electron conv.+cond.
Electron conduction
Electron convection
Sum of components