LULI2000 experiment in Jan 2015 (Au)

Plasma parameters from FCI2

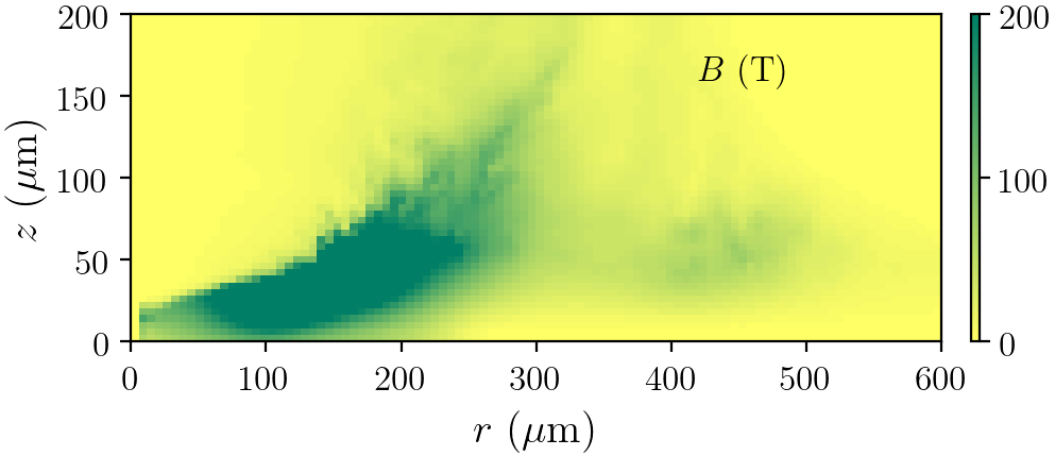
In physical units measured at 2 ns

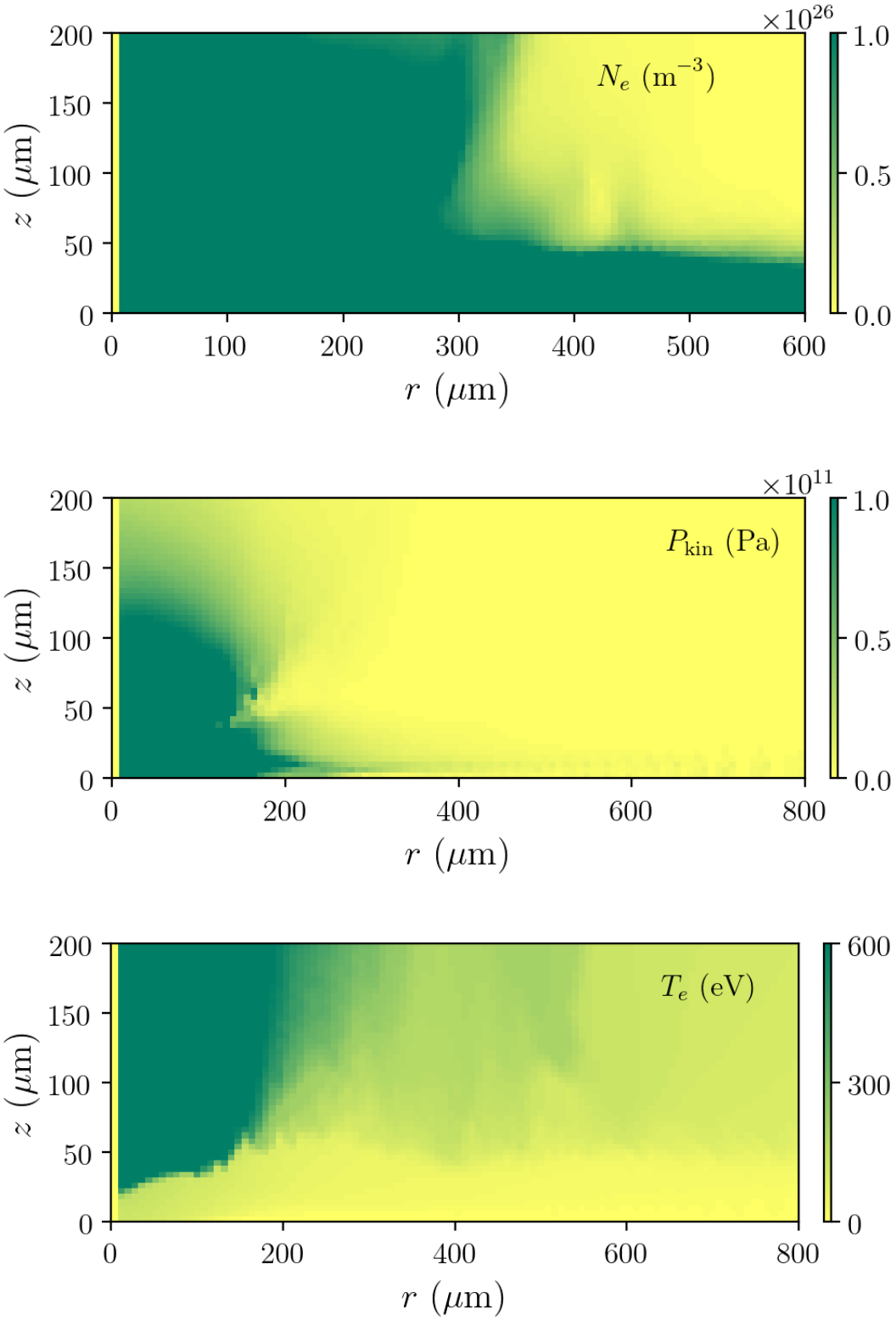
- Total magnetic field magnitude : $B_0 = 80$ T
- Magnetic ribbon between $L_i = 100$ μm & $L_o = 500$ μm. Thickness : $L_t = 60$ μm
- Electron density $N_0 = 4\ 10^{25}$ m^{-3} (ratio with max density at hot spot = 10)
- Total kinetic pressure (mainly from electrons because $Z^\star = 29$) : $P_k = 2\ 10^{10}$ Pa
- Electron temperature (should be the same as ions by collisions) : $T_e = 200$ eV
- Total time of irradiation $T_{\max} = 4.0$ ns with 0.2 kJ
- Proton inertial length : $l_i = 36.0$ μm
- Proton gyroperiod : $\Omega_i = 130.0$ ps
- Alfvén velocity : $V_0 = 276.1$ km.s^{-1}

In hybrid units (that is at $t = 15.4$)

- $T_e = 0.3$ — $T_i = 0.3$
- $A = 197$ — $Z = 79$ — $Z^\star =$ — 29 (check with FCI2)
- $L_i = 2.8$ — $L_o = 13.9$ — $L_t = 1.7$
- Asymptotic beta parameter : $\beta_e = 0.5$ — $\beta_i = 0.01$
- $\Omega_i = 6.79$ — $T_{\max} = 30.8$
- Ion thermal velocity : $v_i = 0.04$ — ion Larmor radius : $\rho_i = 0.24$

Snapshots




$\times 10^{26}$
N_e (m^{-3})
1.0
0.5
0.0
200
150
100
50
0
z (μm)
0
100
200
300
400
500
600
r (μm)
$\times 10^{11}$
P_{kin} (Pa)
1.0
0.5
0.0
200
150
100
50
0
z (μm)
0
200
400
600
800
r (μm)
T_e (eV)
600
300
0
200
150
100
50
0
z (μm)
0
200
400
600
800
r (μm)