LMJ experiment in May 2019 (Au)

Plasma parameters from FCI2

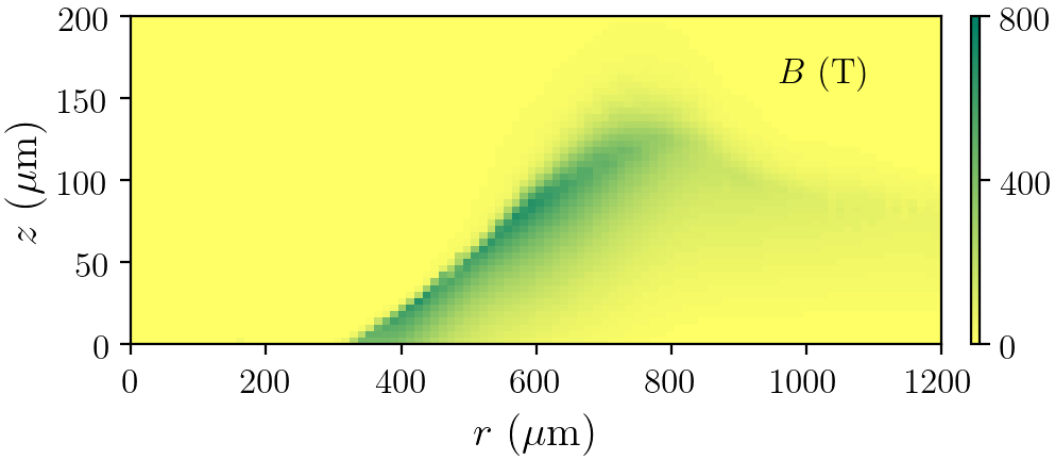
In physical units measured at 3 ns

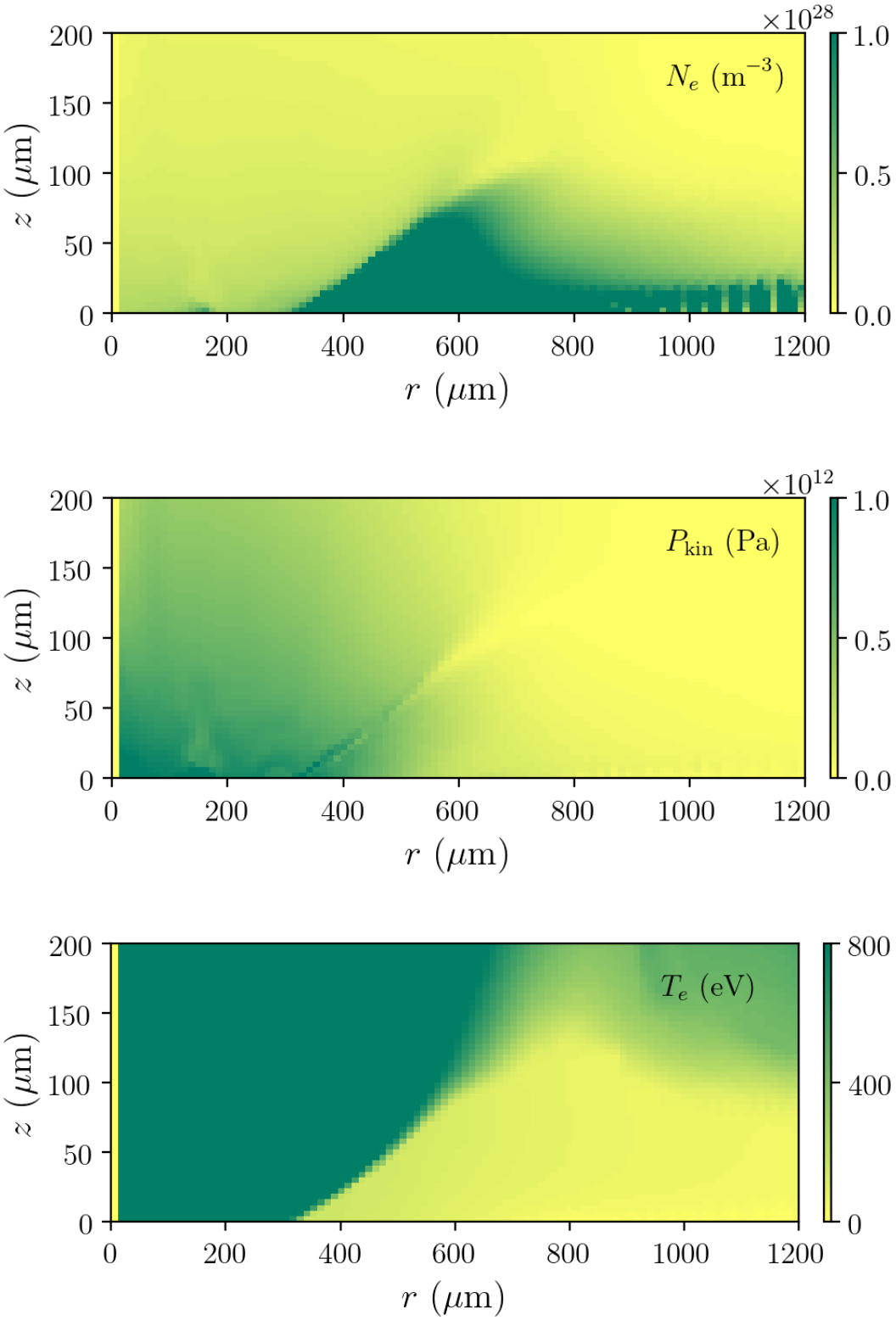
- Total magnetic field magnitude : $B_0 = 600$ T
- Magnetic ribbon between $L_i = 300$ μm & $L_o = 900$ μm. Thickness : $L_t = 40$ μm
- Electron density $N_0 = 4\ 10^{27}$ m^{-3} (ratio with max density at hot spot = 1)
- Mass density $\rho_i = 70$ Kg.m^{-3}
- Total kinetic pressure (mainly from electrons because $Z^\star = 23$) : $P_k = 2\ 10^{11}$ Pa
- Electron temperature (should be the same as ions by collisions) : $T_e = 100$ eV
- Total time of irradiation $T_{\max} = 5.0$ ns with 12.0 kJ
- Proton inertial length : $l_i = 3.6$ μm
- Proton gyroperiod : $\Omega_i^{-1} = 17.4$ ps
- Alfvén velocity : $V_0 = 207.1$ km.s^{-1}

In hybrid units (that is at $t = 172.0$)

- $T_e = 0.2$ — $T_i = 0.2$
- $A = 197$ — $Z = 79$ — $Z^\star = 23$
- $L_i = 83.0$ — $L_o = 250.0$ — $L_t = 11.1$
- Asymptotic beta parameter : $\beta_e = 0.5$ — $\beta_i = 0.02$
- $\Omega_i^{-1} = 8.56$ — $T_{\max} = 287.0$
- Ion thermal velocity : $v_i = 0.03$ — ion Larmor radius : $\rho_i = 0.29$

Snapshots




×10^28
N_e (m^{-3})
1.0
0.5
0.0
200
150
100
50
0
z (μm)
0
200
400
600
800
1000
1200
r (μm)
×10^12
P_{kin} (Pa)
1.0
0.5
0.0
200
150
100
50
0
z (μm)
0
200
400
600
800
1000
1200
r (μm)
T_e (eV)
800
400
0
200
150
100
50
0
z (μm)
0
200
400
600
800
1000
1200
r (μm)