LULI2000 experiment in May 2017 (Cu)

Plasma parameters from FCI2

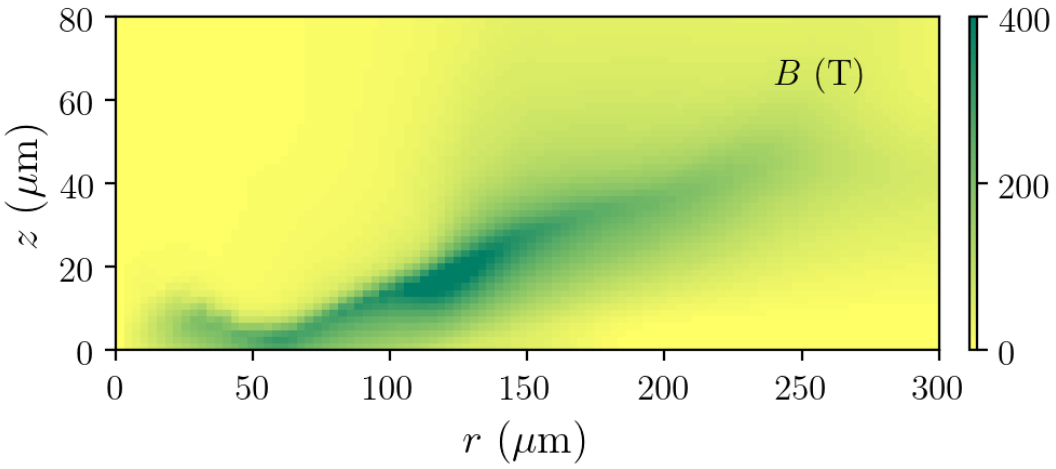
In physical units measured at 2 ns

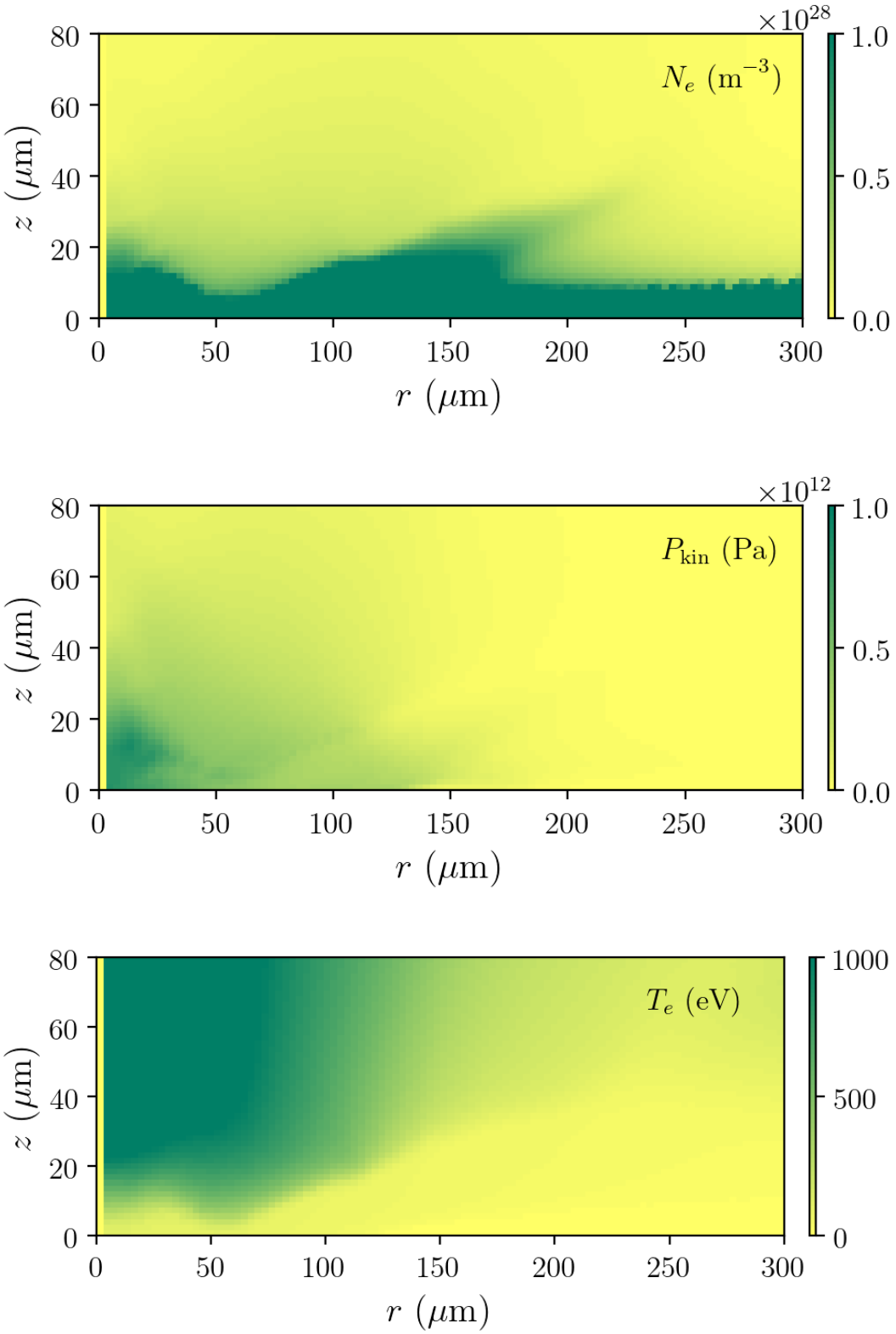
- Total magnetic field magnitude : $B_0 = 400$ T
- Magnetic ribbon between $L_i = 50$ μm & $L_o = 250$ μm. Thickness : $L_t = 20$ μm
- Electron density $N_0 = 4\ 10^{27}$ m^{-3} (ratio with max density at hot spot = 1)
- Mass density $\rho_i = 20$ Kg.m^{-3}
- Total kinetic pressure (mainly from electrons because $Z = 20$) : $P_k = 4\ 10^{11}$ Pa
- Electron temperature (should be the same as ions by collisions) : $T_e = 400$ eV
- Total time of irradiation $T_{\max} = 4.0$ ns with 0.2 kJ
- Proton inertial length : $l_p = 3.6$ μm
- Proton gyroperiod : $\Omega_p^{-1} = 26.1$ ps
- Alfvén velocity : $V_0 = 138.0$ km.s^{-1}

In hybrid units (that is at $t = 76.6$)

- $T_e = 2.0$ — $T_i = 2.0$
- $A = 63$ — $Z = 29$ — $Z^\star = 22$ ($= Am_pN_e/\rho_i$)
- $L_i = 13.9$ — $L_o = 69.4$ — $L_t = 5.6$
- Asymptotic beta parameter : $\beta_e = 4.0$ — $\beta_i = 0.2$
- $\Omega_i^{-1} = 2.86$ — $T_{\max} = 153$
- Ion thermal velocity : $v_i = 0.18$ — ion Larmor radius : $\rho_i = 0.51$

Snapshots




$\times 10^{28}$
N_e (m^{-3})
1.0
0.5
0.0
80
60
40
20
0
z (μm)
0
50
100
150
200
250
300
r (μm)
$\times 10^{12}$
P_{kin} (Pa)
1.0
0.5
0.0
80
60
40
20
0
z (μm)
0
50
100
150
200
250
300
r (μm)
T_e (eV)
1000
500
0
80
60
40
20
0
z (μm)
0
50
100
150
200
250
300
r (μm)