



# The relation between GOLEM's parameter to the plasma

The 4<sup>th</sup> ASEAN School on Plasma and Nuclear Fusion 2018  
At Chiang Mai University

Presented by Group 4

Mentor Remy GUIRLET

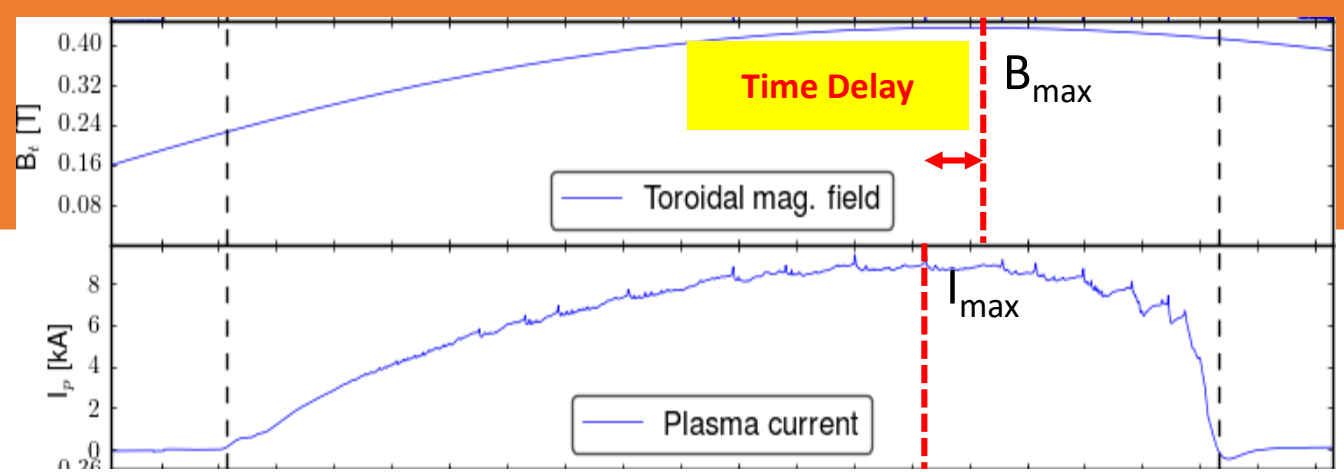
# Outline

- Objectives
- Introduction
- Result & Discussion

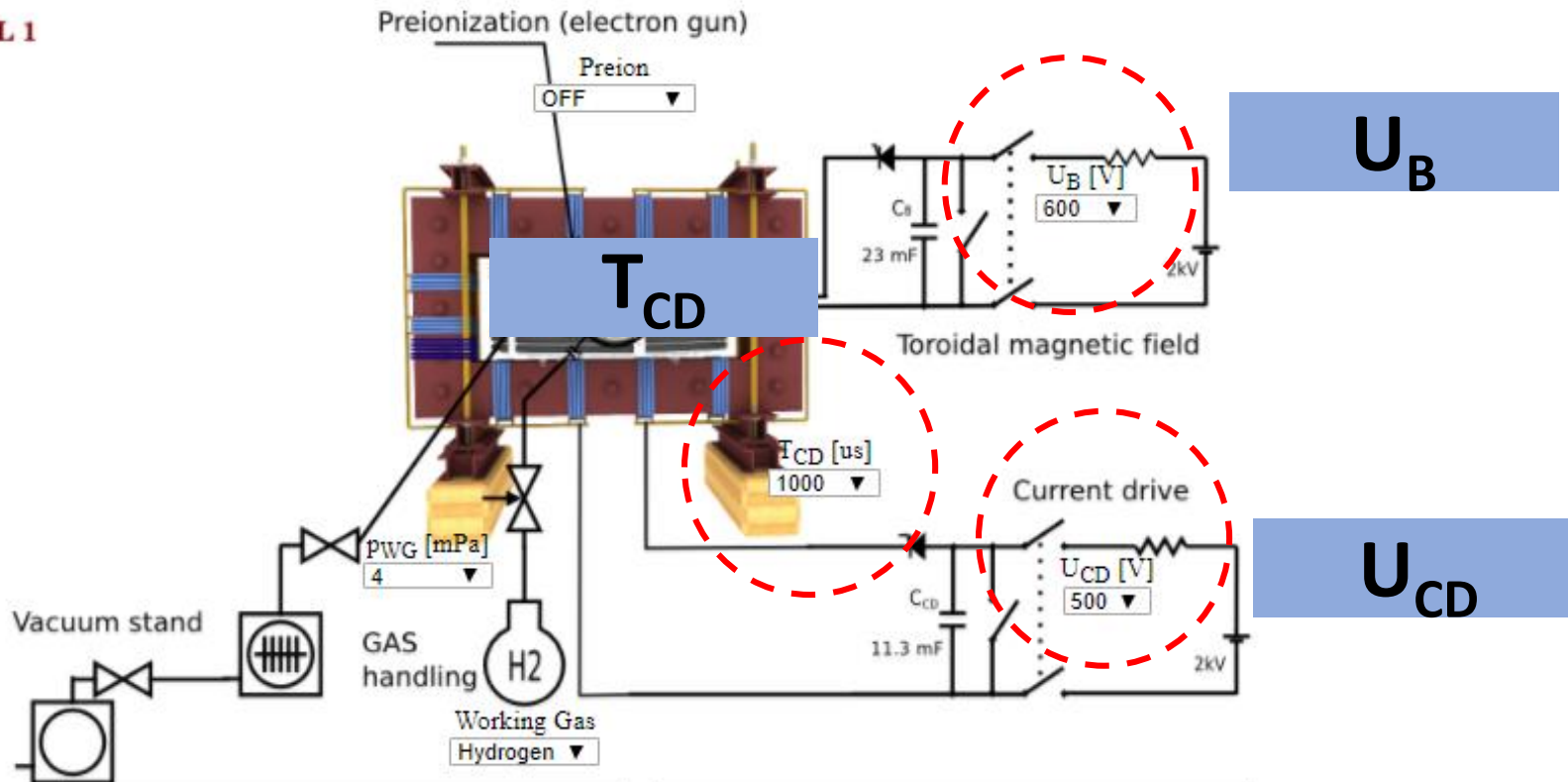
# Objectives

- To analyze how delayed time affect the confinement time.
- To analyze how adjustable voltages ( $U_{CD}$ ) affect the confinement time,  $n_e$  and  $T_e$ .
- To analyze how adjustable voltages ( $U_B$ ) affect the confinement time,  $n_e$  and  $T_e$ .

# Introduction



LEVEL 1

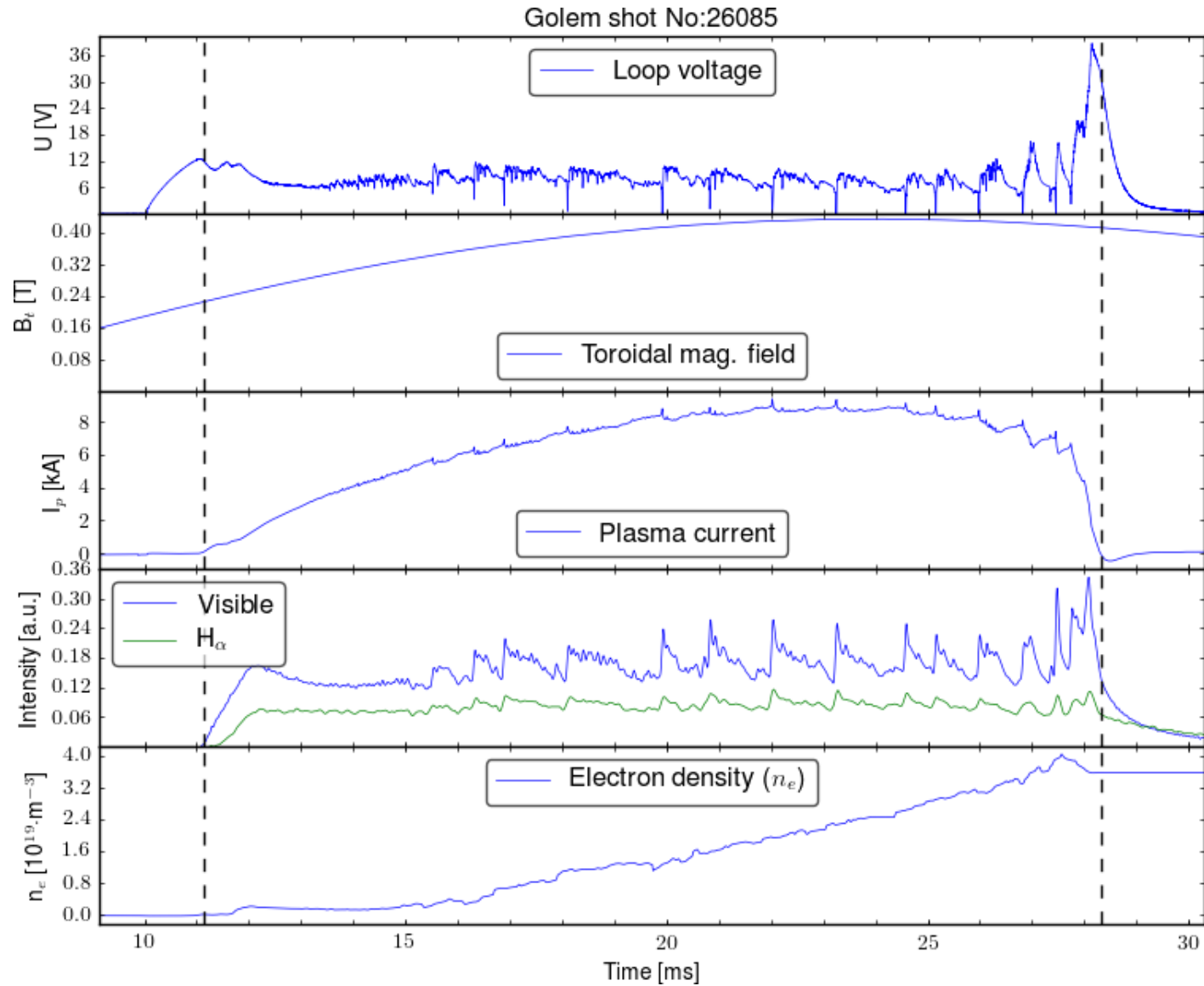


Discharge comment

Place the discharge setup into the queue

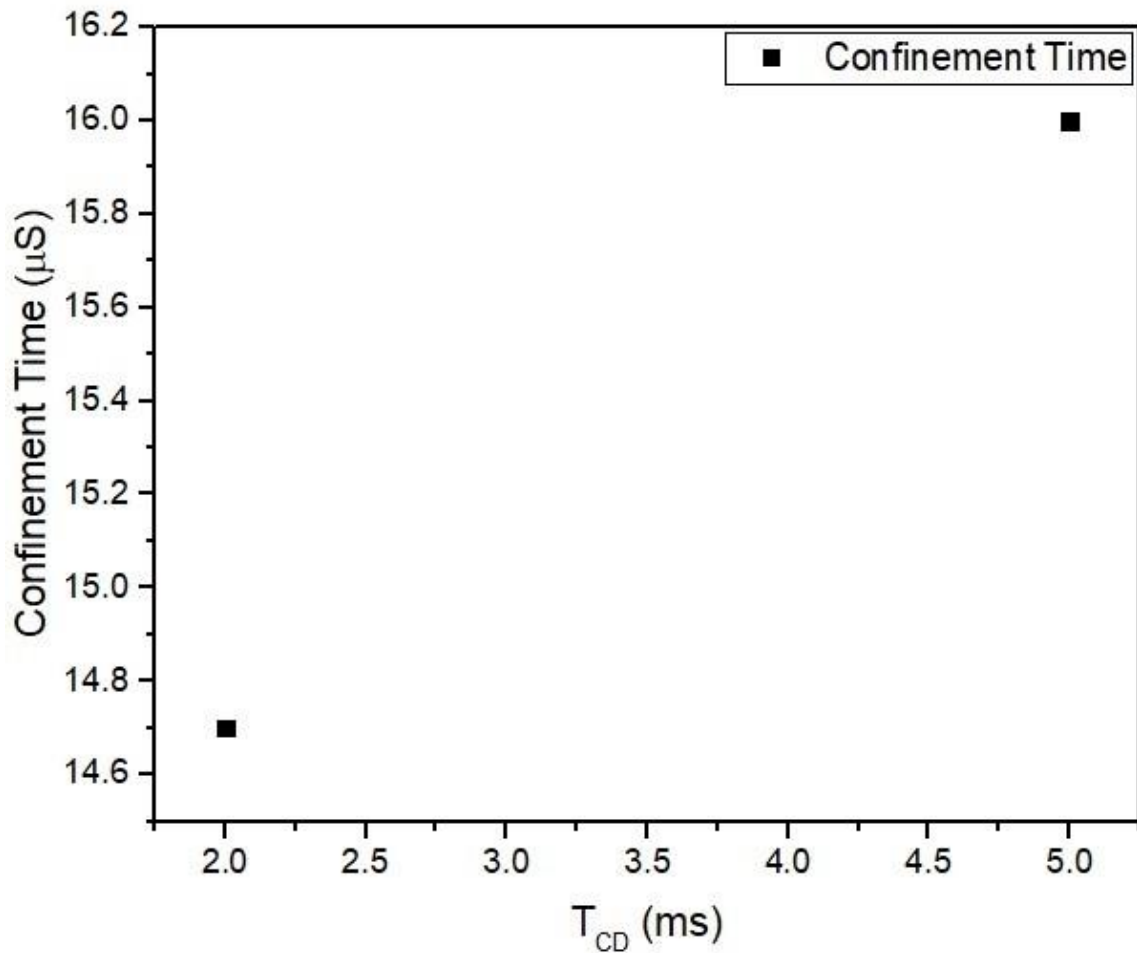
Note: We use cookies to record last set parameters in your browser to simplify parameter scans.

# Result & Discussion

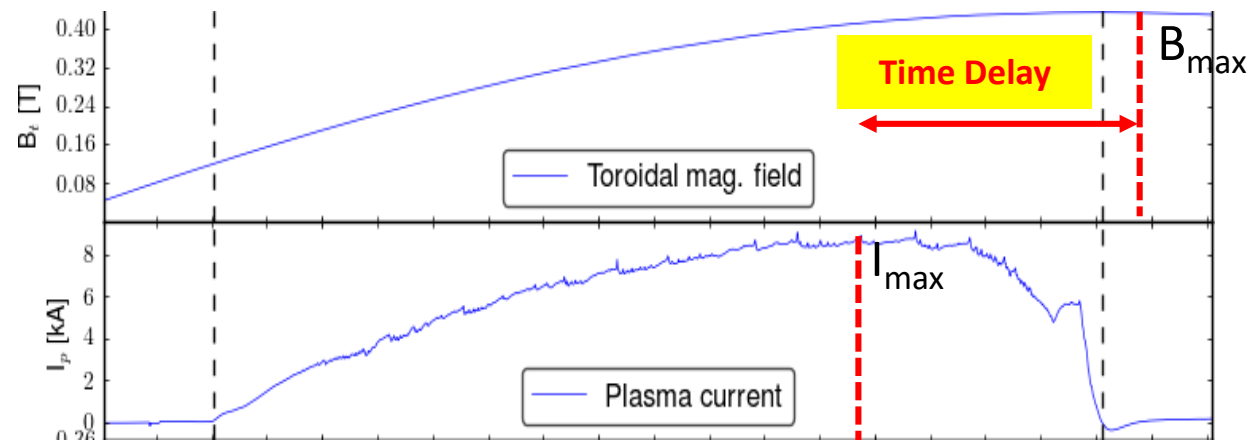


# Result & Discussion

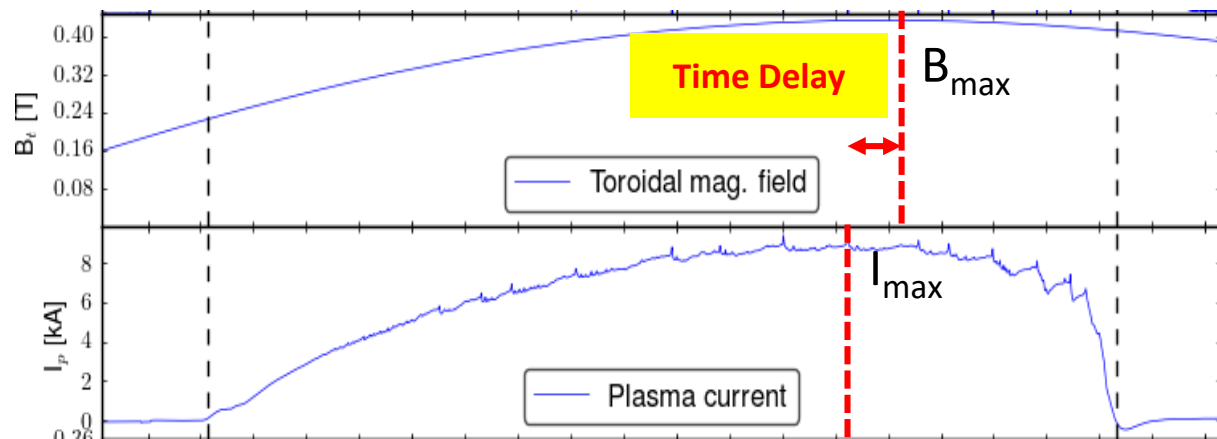
## Time-Delay



$T_{\text{CD}} = 2 \text{ ms}$

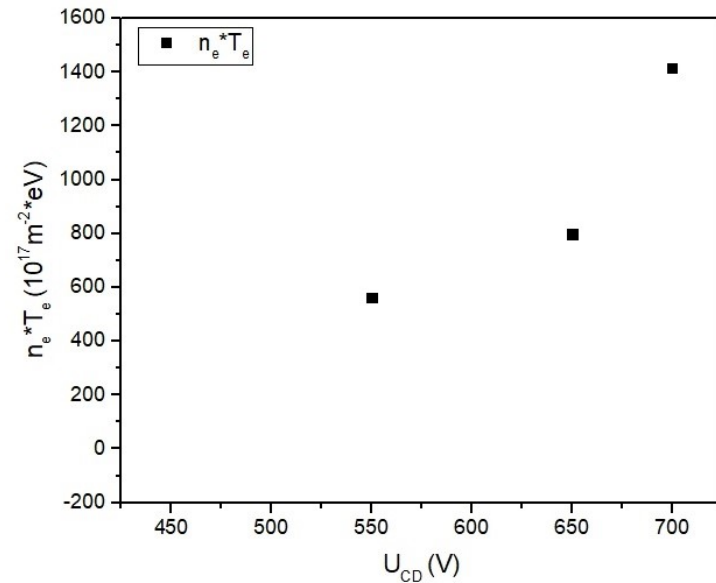
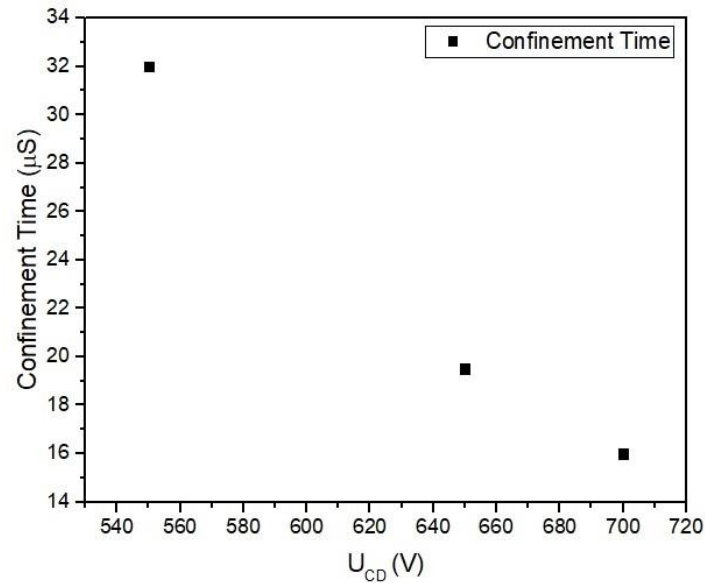
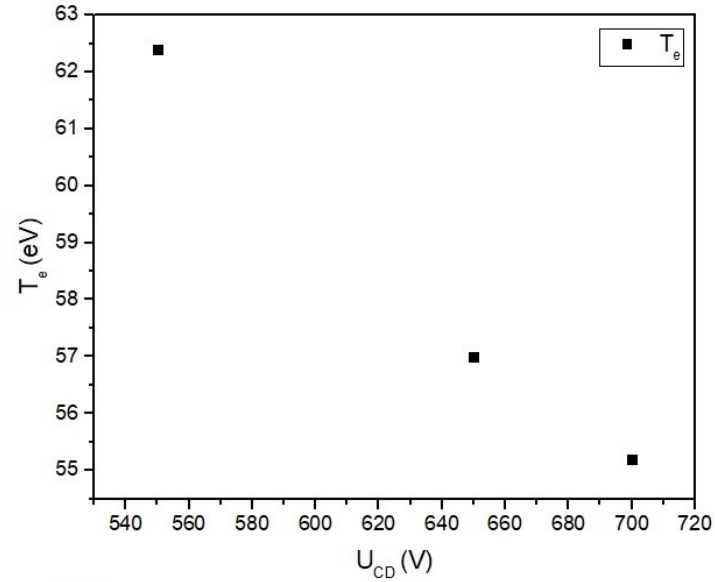
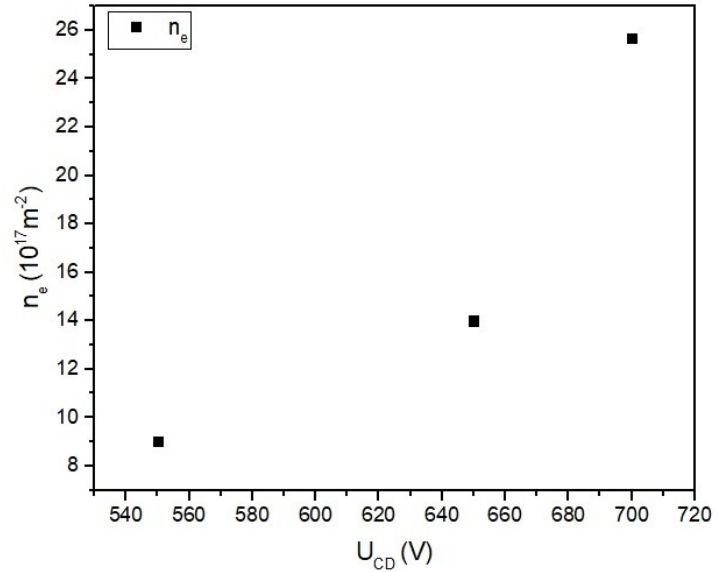


$T_{\text{CD}} = 5 \text{ ms}$



# Result & Discussion

## $U_{cd}$ Current Drive



$$P_{\Omega} \propto \frac{V^2}{\eta}$$

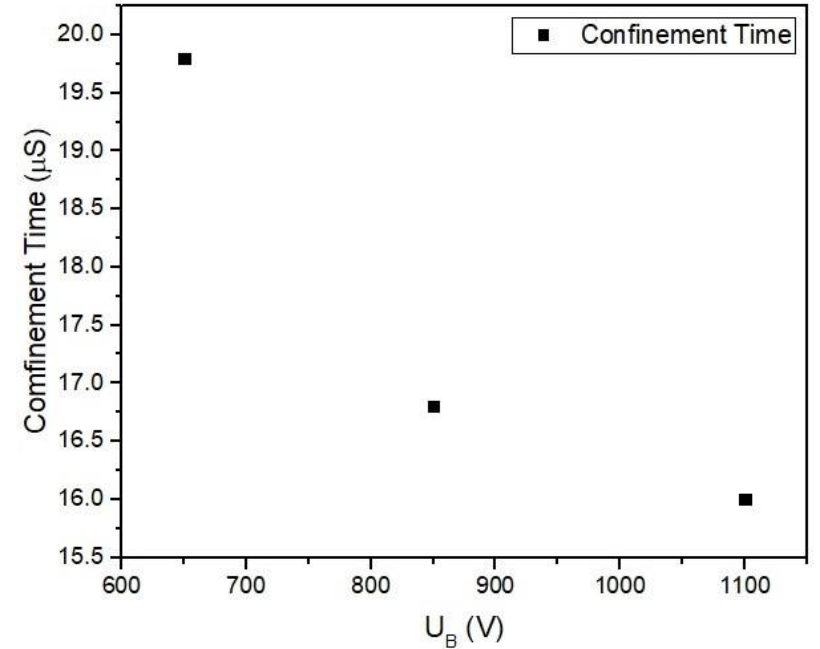
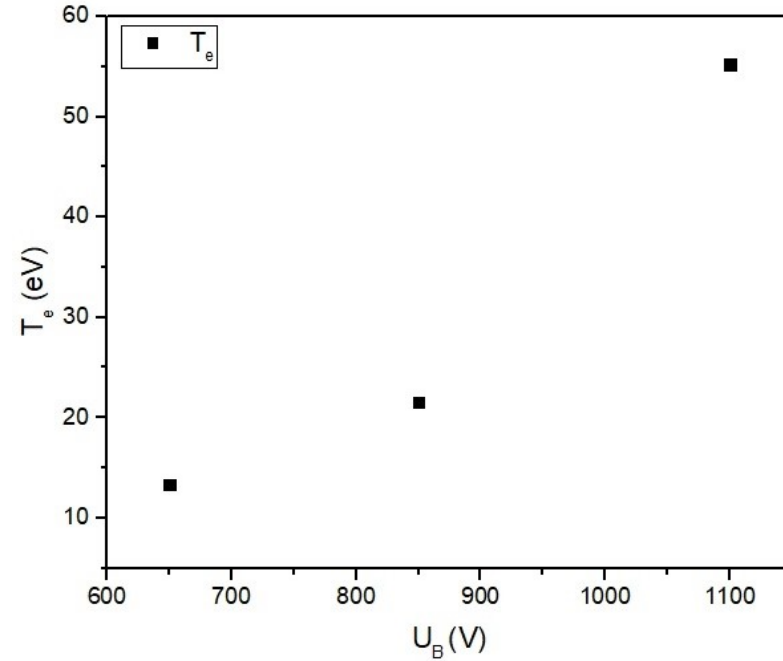
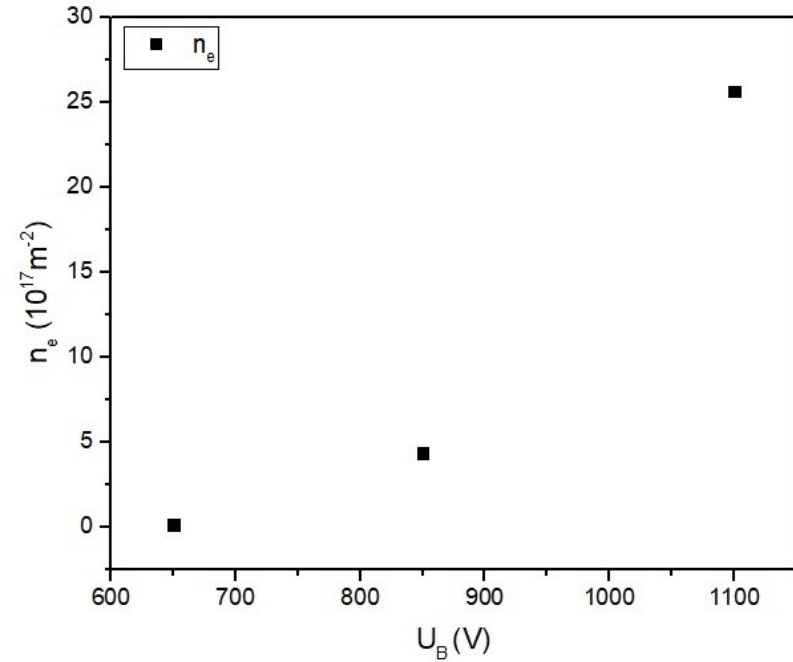
$$P_{\Omega} \propto \eta I^2$$

$$\eta = \frac{\pi Z e^2 m^{1/2} \ln \Lambda}{(4\pi \epsilon_0)^2 (k_B T)^{3/2}}$$

$$\tau_E = \frac{W}{P_{\Omega}}$$

# Result & Discussion

$U_B$  Toroidal Magnetic Field



$$P_{\Omega} \propto \frac{V^2}{\eta}$$

$$P_{\Omega} \propto \eta I^2$$

$$\eta = \frac{\pi Z e^2 m^{1/2} \ln \Lambda}{(4\pi \epsilon_0)^2 (k_B T)^{3/2}}$$

$$\tau_E = \frac{W}{P_{\Omega}}$$



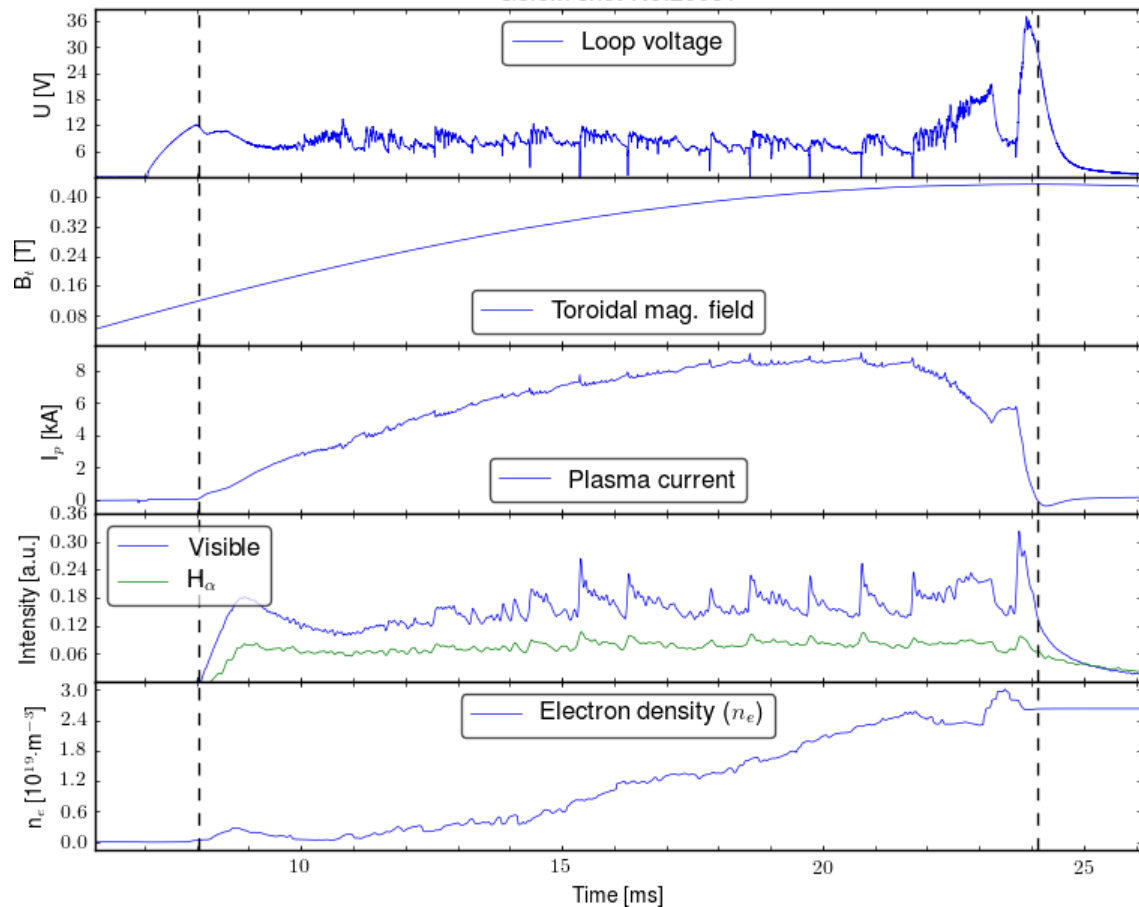
**Thank you for your attention**

Q&A

# Compared $T_{cd}$

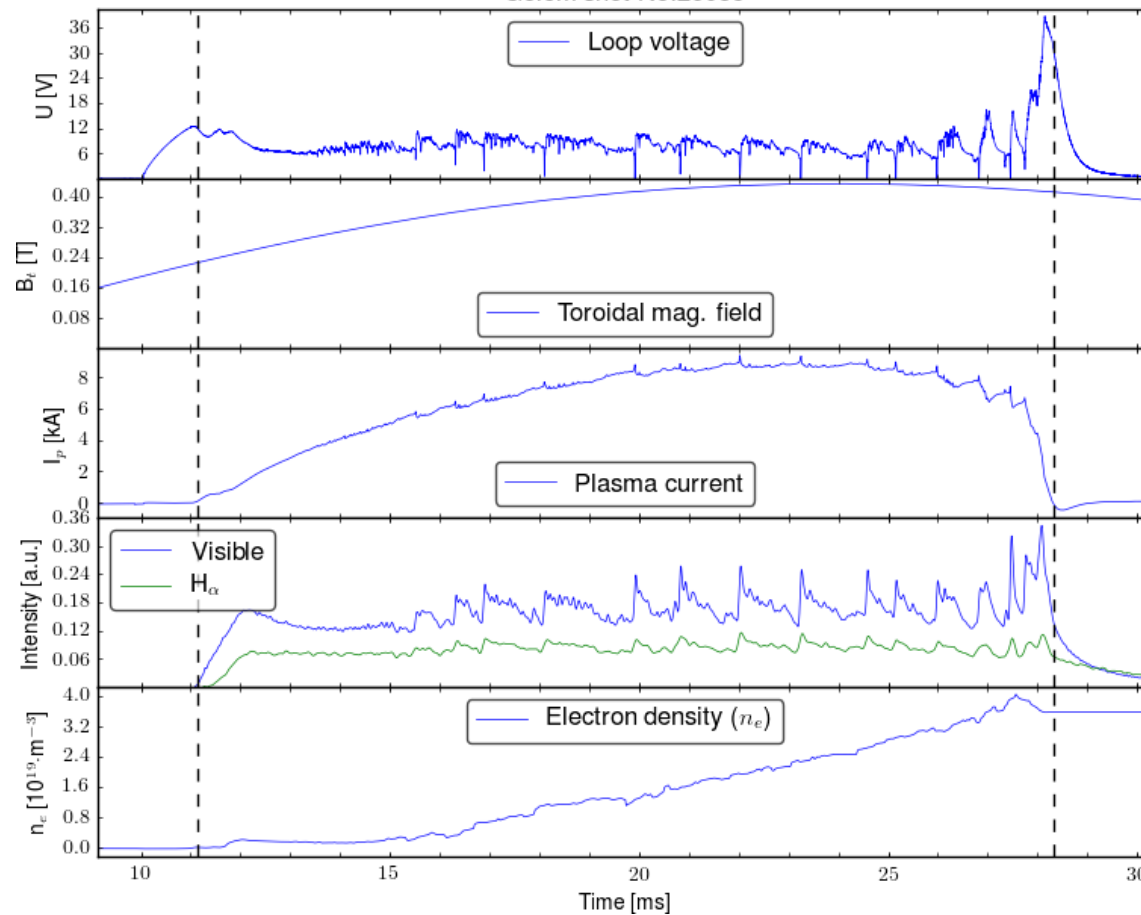
$T_{cd} = 2$  ms

Golem shot No:26081



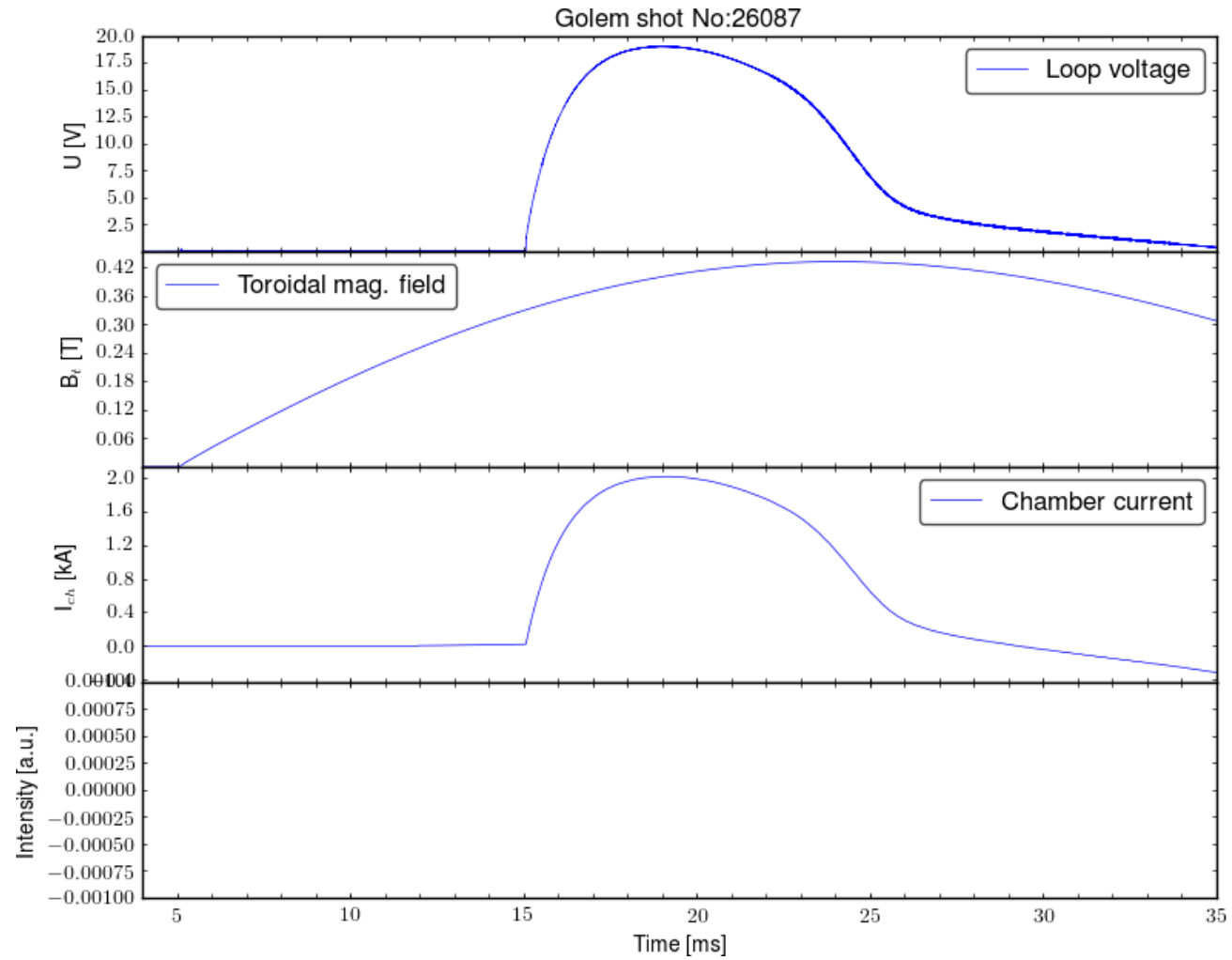
$T_{cd} = 5$  ms

Golem shot No:26085



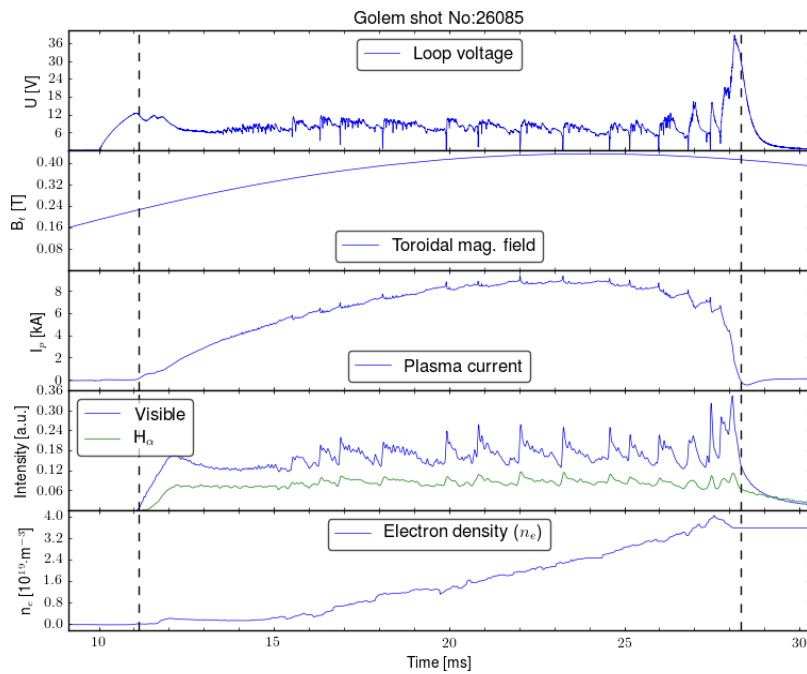
# $T_{cd}$ without plasma

$T_{cd} = 10$  ms

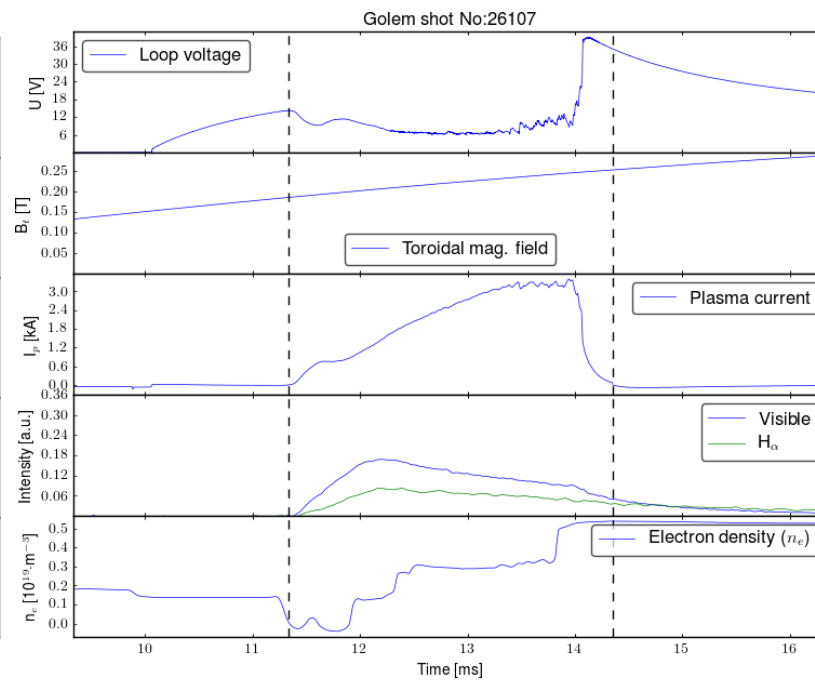


# Compared $U_B$

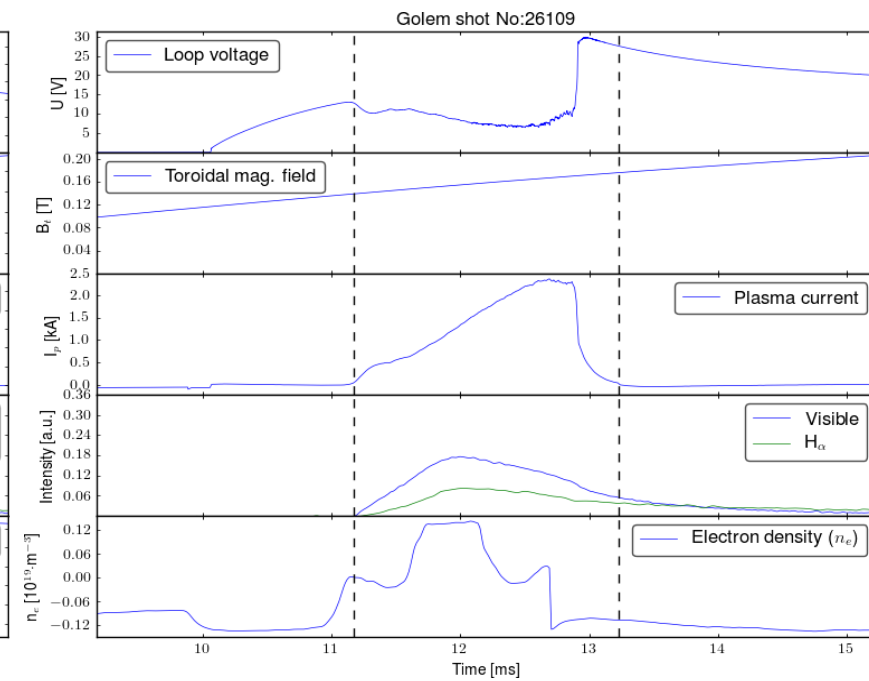
$U_B = 1100$  V



$U_B = 850$  V

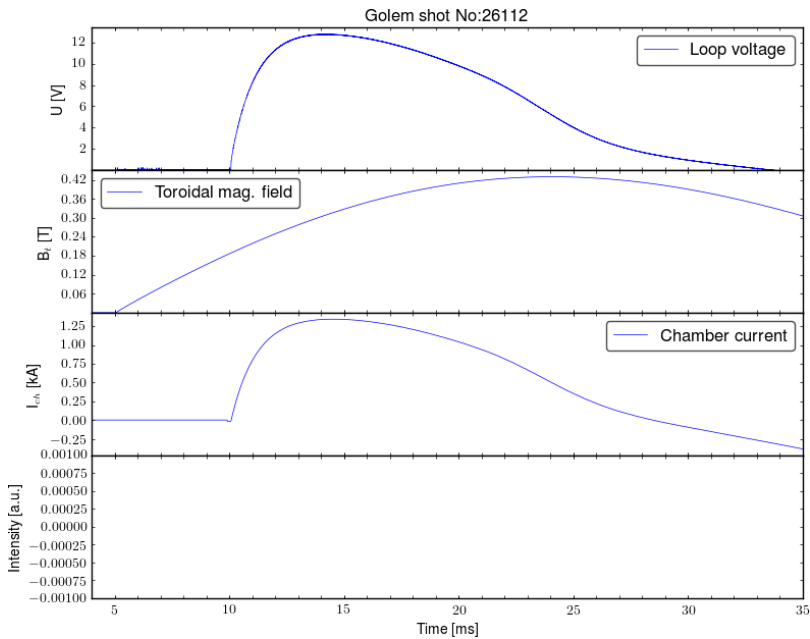


$U_B = 650$  V

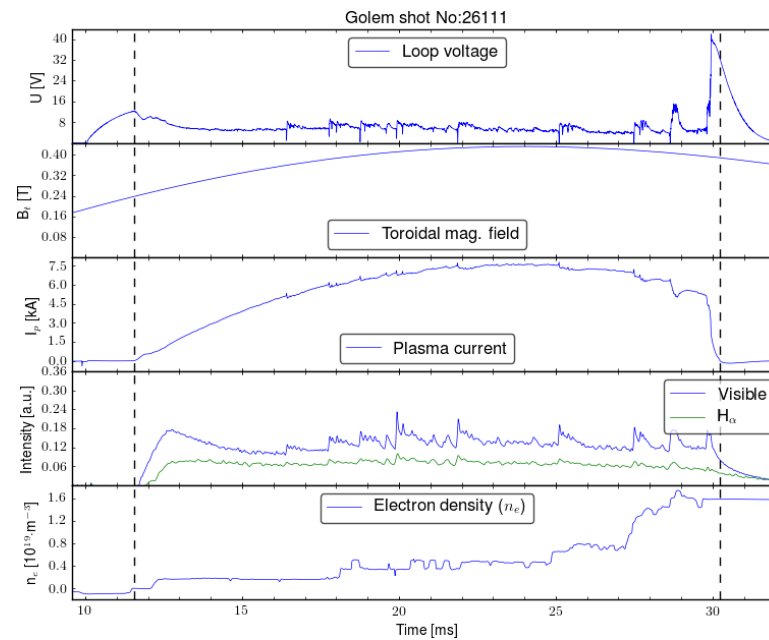


# Compared $U_{cd}$

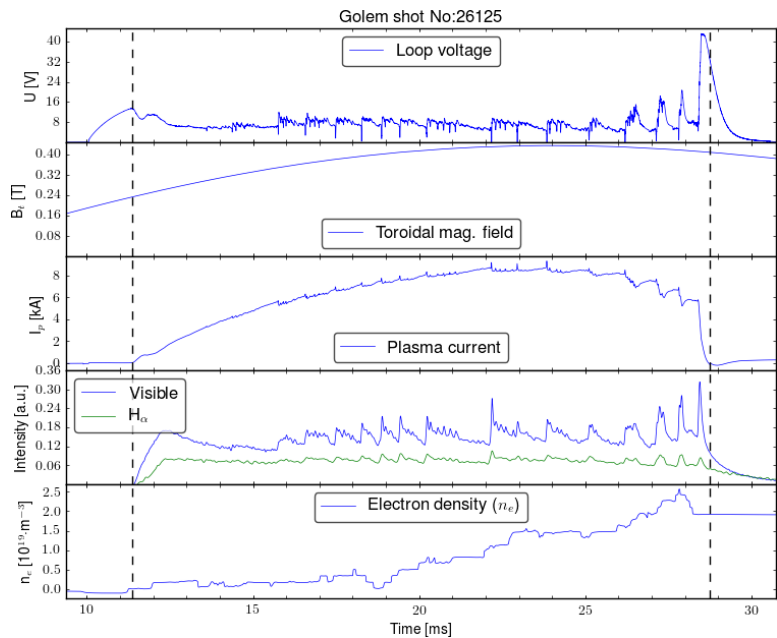
$U_{cd} = 450 \text{ V}$



$U_{cd} = 550 \text{ V}$



$U_{cd} = 650 \text{ V}$



$U_{cd} = 700 \text{ V}$

