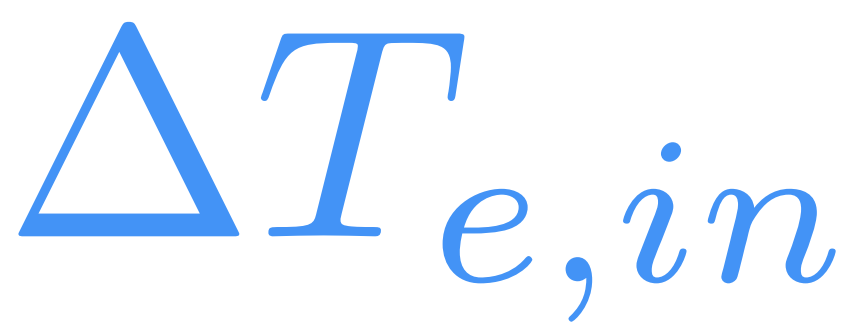
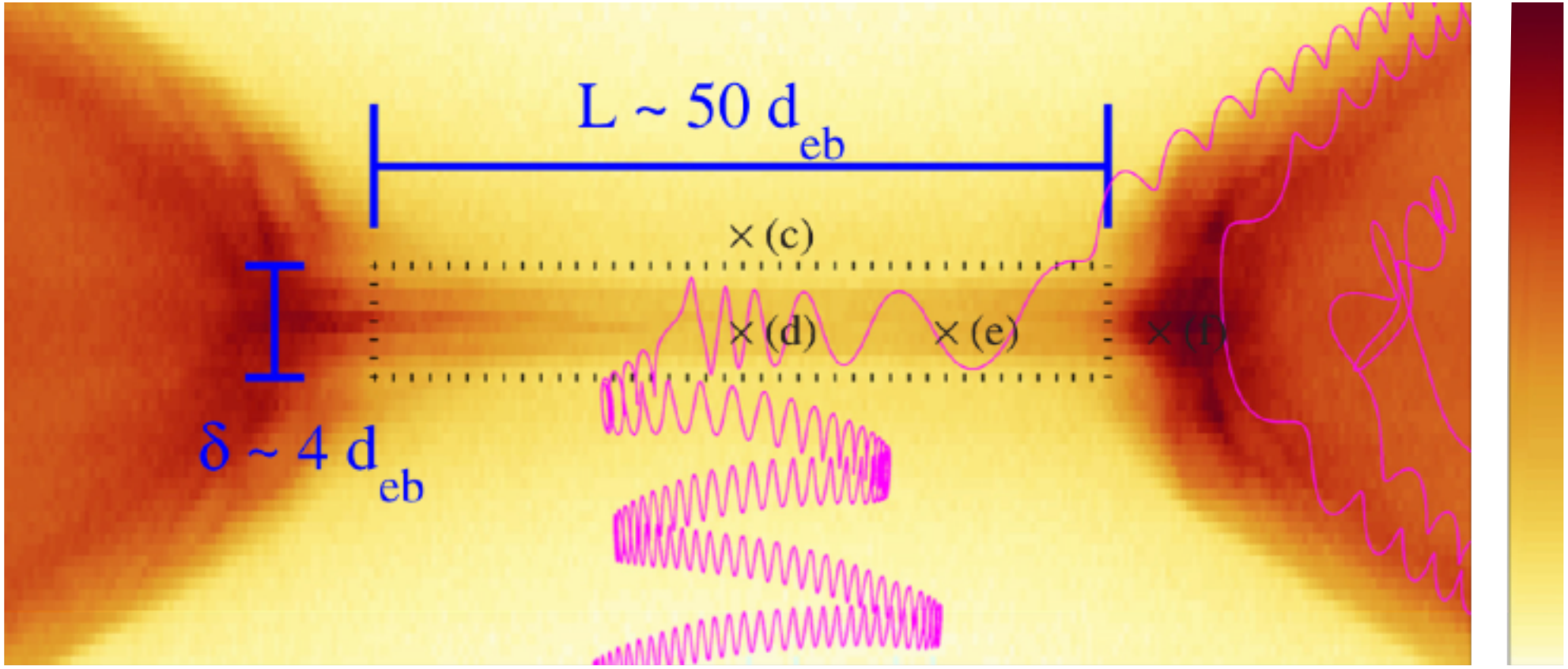

$\Delta T_{e,in}$

A model for the heating mechanism exists


L ~ 50 d eb
δ ~ 4 d eb
× (c)
× (d)
× (e)
× (f)

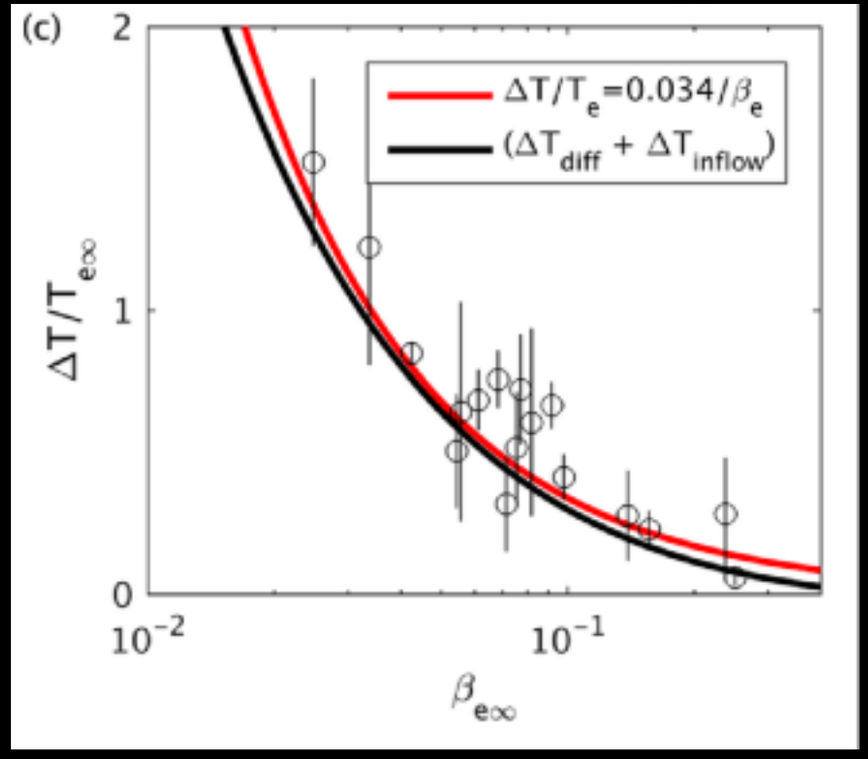

Inflow

Diffusion region

$\Delta T_{e,diff}$

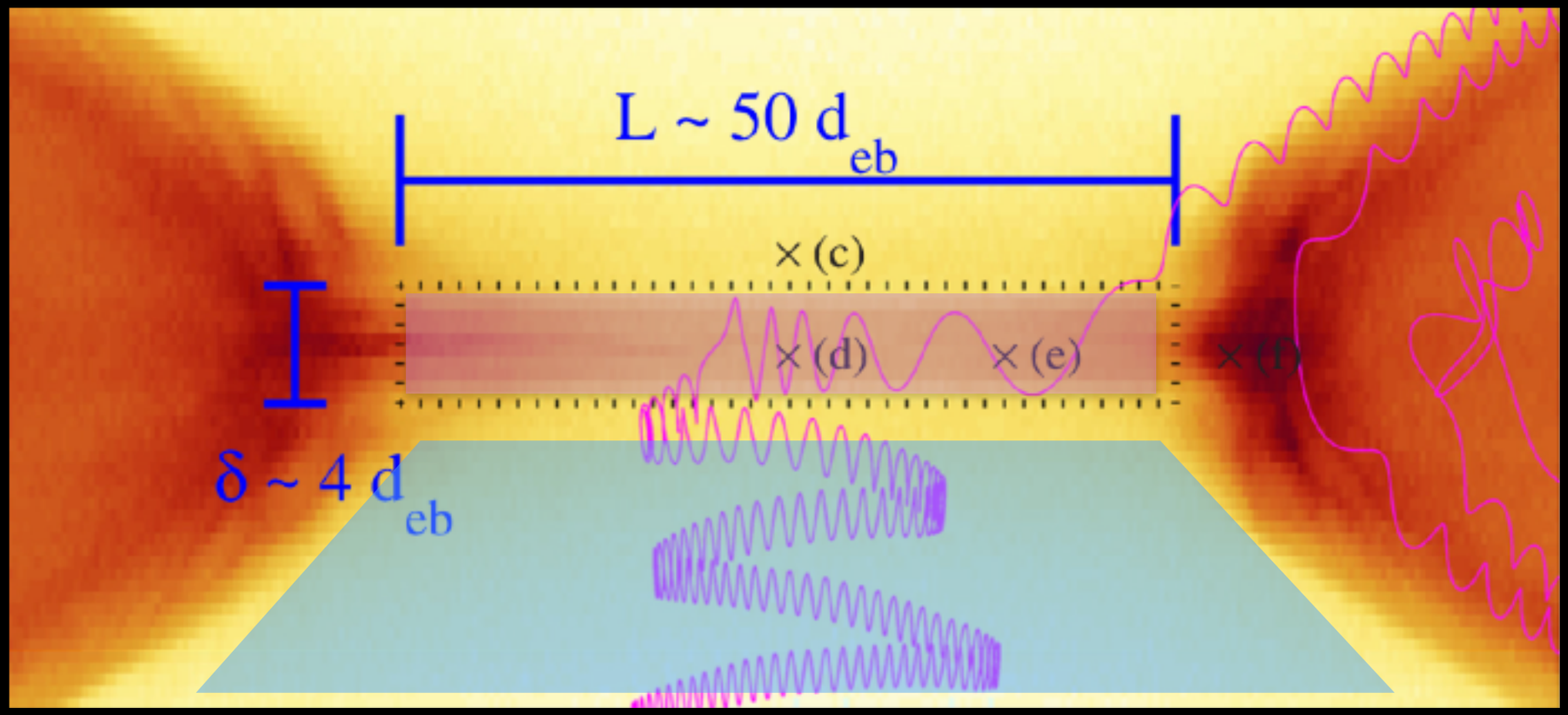
$$\frac{\Delta T_{e,tot}}{T_{e,up}} = \frac{\Delta T_{e,in}}{T_{e,up}} + \frac{\Delta T_{e,diff}}{T_{e,up}} \simeq \frac{0.034}{\beta_{e,up}}$$

The model (middle terms) agrees with the empircal scaling (last term)



(Le et al., 2016)

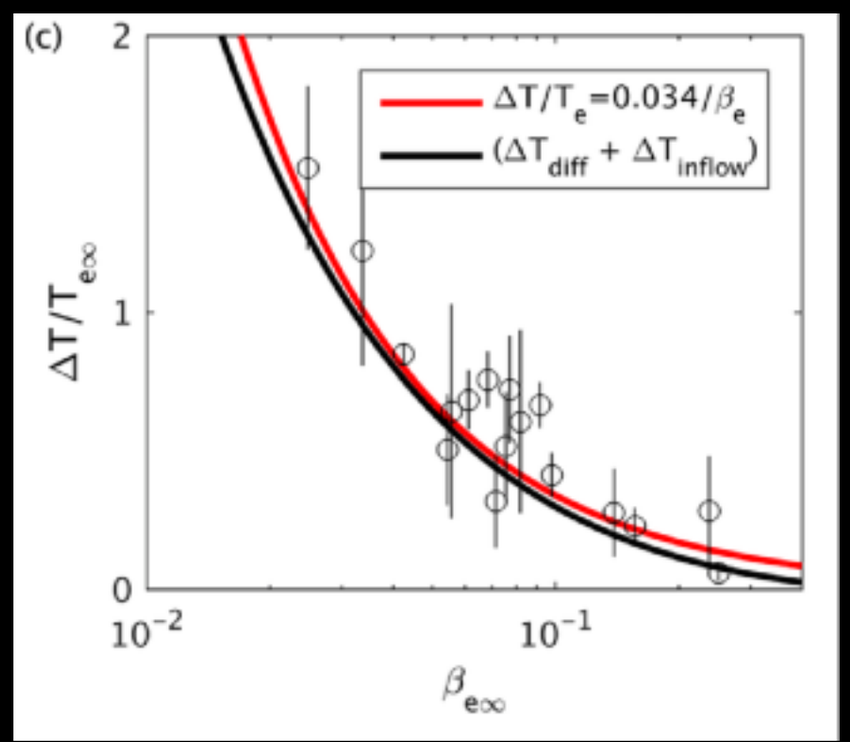
A model for the heating mechanism exists



(Le et al., 2016)

$$\frac{\Delta T_{e,tot}}{T_{e,up}} = \frac{\Delta T_{e,in}}{T_{e,up}} + \frac{\Delta T_{e,diff}}{T_{e,up}} \simeq \frac{0.034}{\beta_{e,up}}$$

The model (middle terms) agrees with the empircal scaling (last term)



(Le et al., 2016)

The quasi-relativistic regime is relatively unexplored

Parameters

σ_w	β_i	T_e/T_i	$\Delta\gamma_i$
0.1	0.0078125	0.1	0.000406687
0.1	0.0078125	0.3	0.000406767
0.1	0.0078125	1	0.000407051
0.1	0.03125	0.1	0.00163203
0.1	0.03125	0.3	0.00163334
0.1	0.03125	1	0.00163818
0.1	0.125	0.1	0.00661497
0.1	0.125	0.3	0.00663803
0.1	0.125	1	0.00673223
0.1	0.5	0.1	0.0280133
0.1	0.5	0.3	0.0285164
0.1	0.5	1	0.0308345
0.1	2.	0.1	0.155222
0.1	2.	0.3	0.178254
0.1	2.	1	0.394336
0.3	0.0078125	0.1	0.0012227
0.3	0.0078125	0.3	0.00122343
0.3	0.0078125	1	0.0012261
0.3	0.03125	0.1	0.00493921
0.3	0.03125	0.3	0.00495179
0.3	0.03125	1	0.00500182
0.3	0.125	0.1	0.0205981
0.3	0.125	0.3	0.0208554
0.3	0.125	1	0.022019
0.3	0.5	0.1	0.102084
0.3	0.5	0.3	0.110952
0.3	0.5	1	0.163062

Use **PiC simulation**. Choose parameters so that inflow/ outflow electrons are **moderately** relativistic