

# 3MHz Kicker for Head-on-Collision

May have some errors.

Y. Iwashita

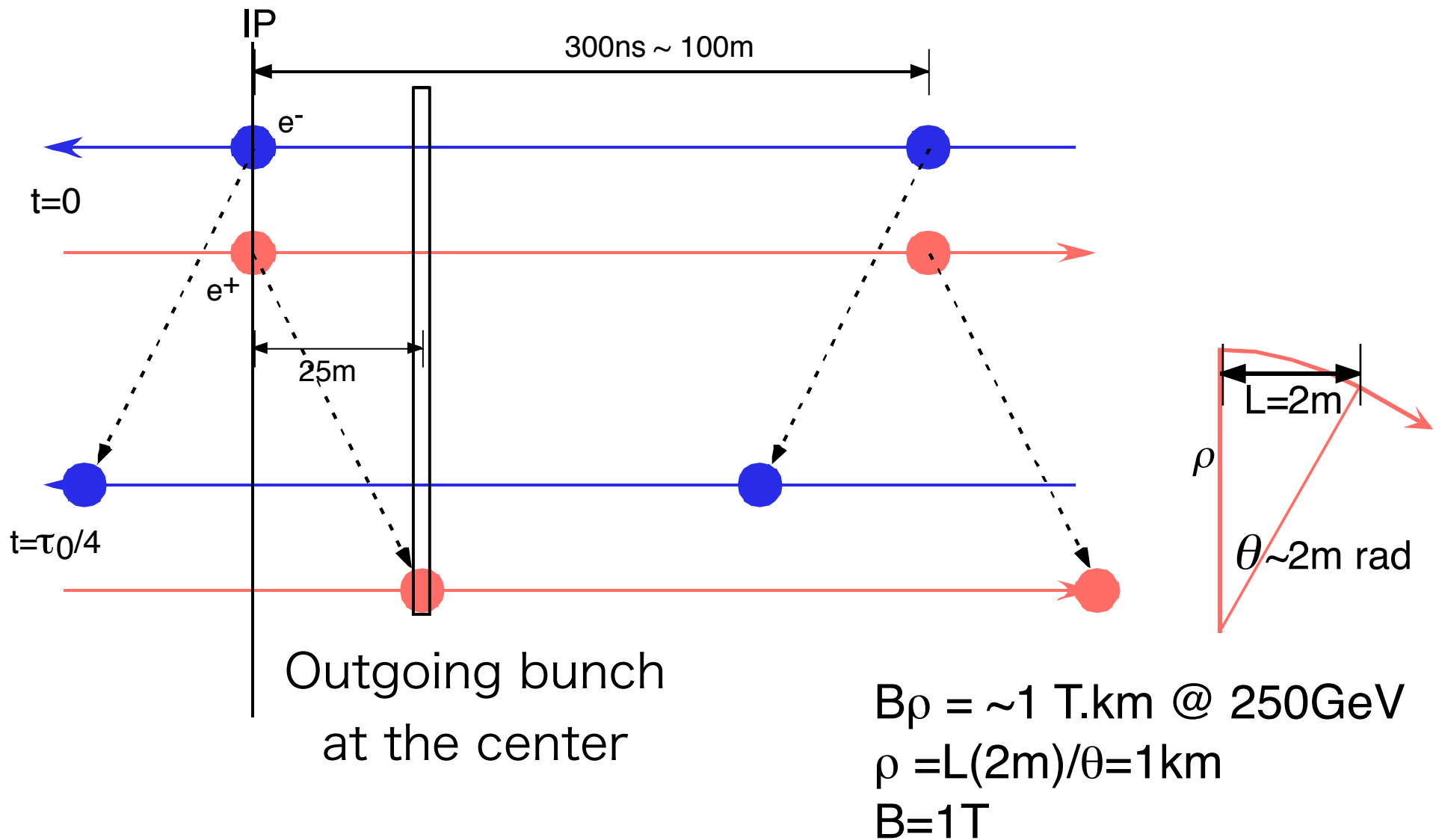
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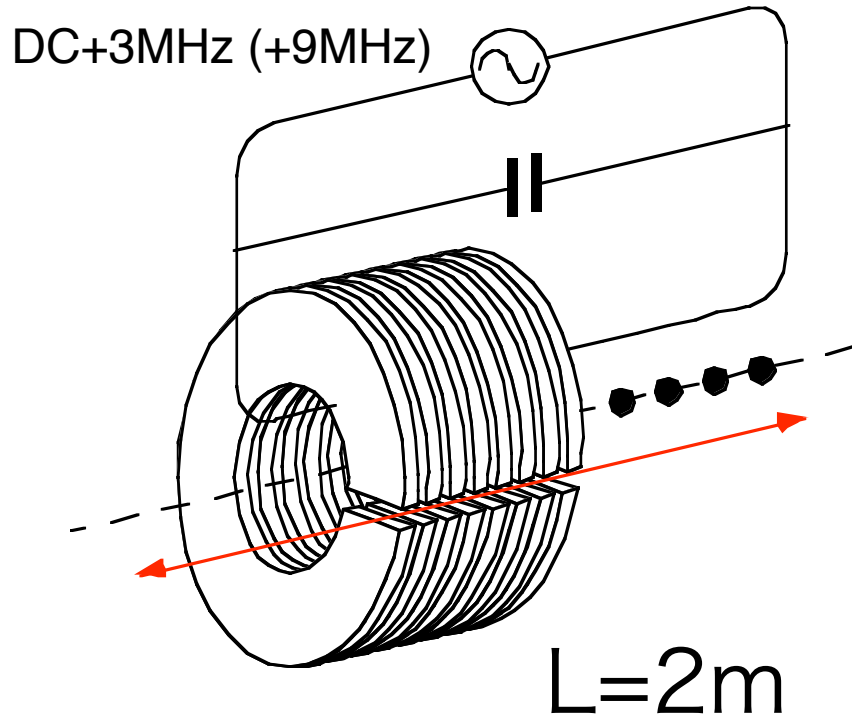
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<http://wwwal.kuicr.kyoto-u.ac.jp>

# Time Structure of Beam

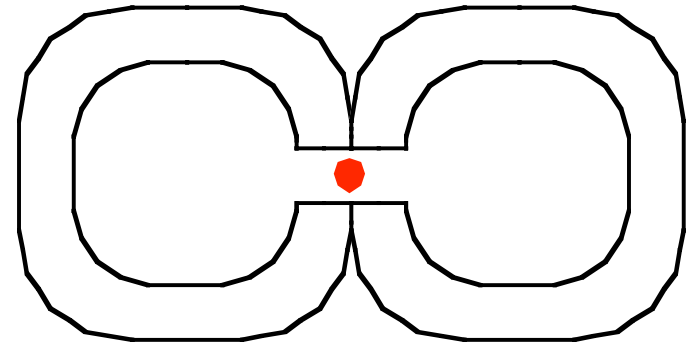


# Sketch of a Kicker



$2\text{cm} \times 6\text{cm} \times 2\text{m} = 0.0024\text{m}^3$   
Stored Energy  $W \sim 1200[\text{J}] @ 1\text{T}$

Variant

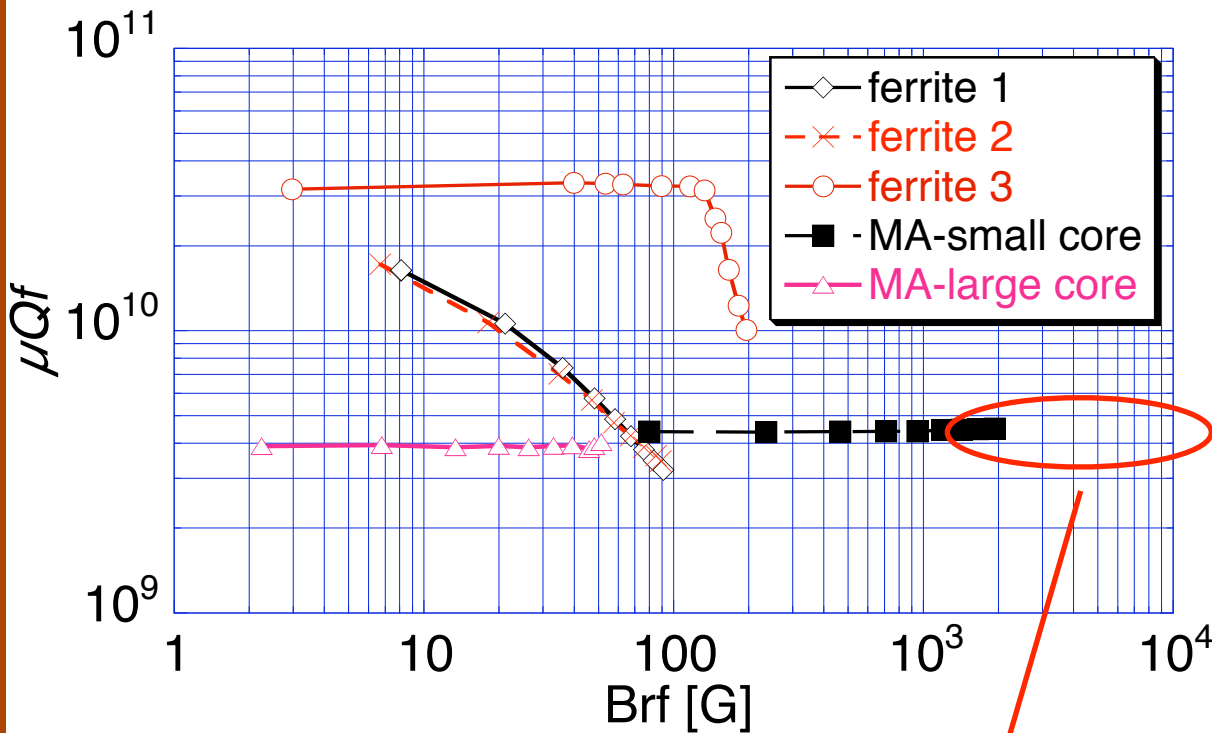


Double C-type

Better shielding

Step at center?

# Magnetic Alloy (Finemet)

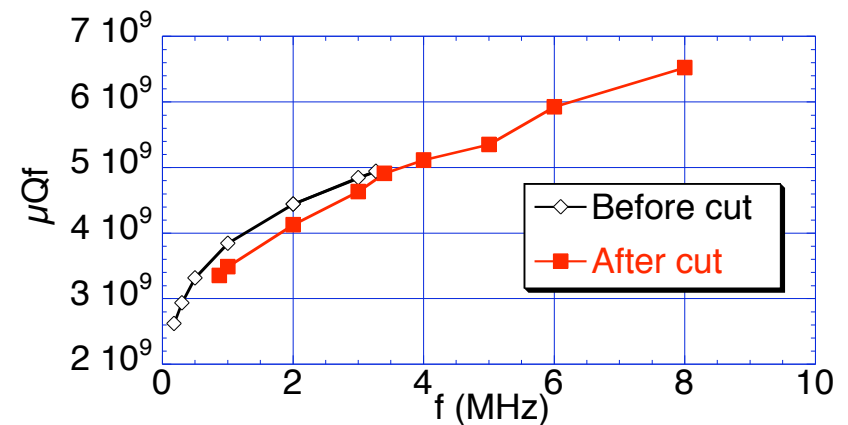


Large Test Core for JPARC

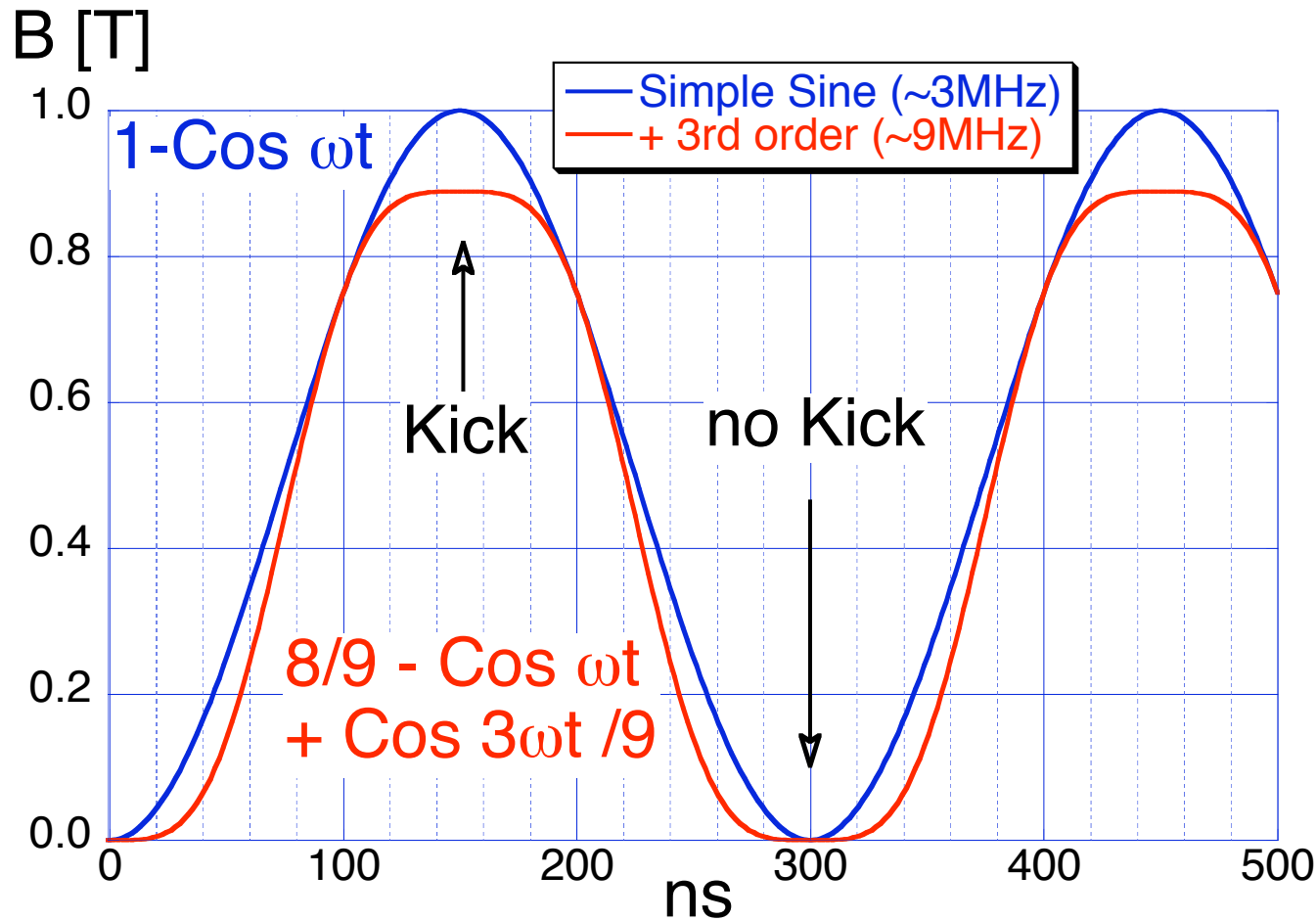
Power Supply Limit

$Q < 1$  for non-cut core

$Q \sim 10$  for cut core @ a few mm gap



# Waveform of Kicker



$$\Delta B/B_0 \sim 1 - \text{Cos}(2\pi/100) < 0.2\% \quad \left(\frac{2\text{m}}{100\text{m}}\right)$$

9MHz component may be added if needed.

# Comments

- MA is used for RF accelerating cavity to generate high voltage.  
→ Not for generation of B.
- Required RF power should be estimated.
- Have to be longer for less radiation.
- Need R&D