

# LEAR ANTI-CYCLOTRON

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**Muon Ring Cooler Mini-Workshop**  
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## B-Field

- Magnet 1.6 Tesla  
4 concentric coils  
Weak focusing  
Azimuthally symmetric field
- Injection radius = 110 mm,  
 $p = 202 \text{ MeV}/c$ , 0.3 mbar hydrogen
- Anti-protons adiabatically spiral to  
the center
- $dE/dx$  cannot be too high

## B-Field Continue...

- Final anti-proton swarm
  - $r = 15 \text{ mm}$
  - $h = 40 \text{ mm}$
  - $\text{KE} = 2 \text{ keV}$
- Pulsed electric kicker in Z
  - 80 ns pulse
  - 20 ns rise
- 20 microsecond spiral time
- A long bunch train coalesced into one swarm

## Challenges

- more focusing  $\implies$  more  $dE/dx$ 
  - $\implies$  faster spiral
  - $\implies$  still adiabatic
- more focusing  $\implies$  greater beam acceptance
  - $\implies$  accept high emittance muons