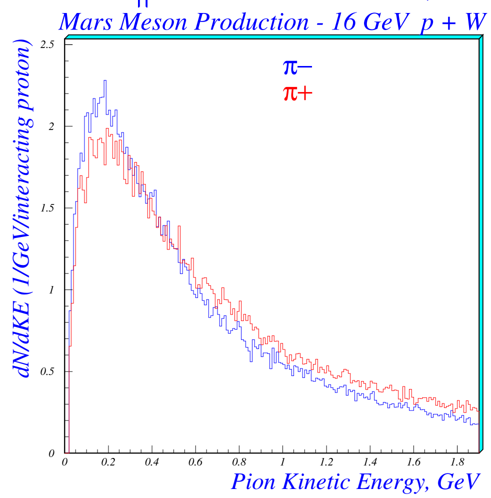
The Muon Source

- Pion production peaks at $P_{\|} \approx 350$ MeV$/c$; $P_{\perp} \lesssim 200$ MeV$/c$.



- $\Rightarrow$ Capture the soft pions in a solenoid magnet channel.
- Capture efficiency improved with a stronger (20 T) field on the target than in the main channel (1.25 T). [Adiabatic invariance reduces the pion $P_{\perp}$ when going from high to low B.]
- $\Rightarrow$ High-Z target without nearby cooling structure that would absorb pions.
- $\Rightarrow$ Liquid mercury jet target.
- Soft pions have $v/c < 1$, $\Rightarrow$ Disperse while drifting
  $\Rightarrow$ Begin RF manipulation as soon as possible to form a bunch with reduced energy spread (Phase Rotation).