

ESR Beam Parameters

Energy: 15 – 400 MeV/u (for bare heavy ions)
upper limit due to electron cooling
lowest energy 9 MeV/u in machine experiment

Intensity: 1 – 10^9 ions
upper limit due to instabilities of cold beam
(above 5 – 10 mA ion current)

Lifetime: ranging from minutes to hours
limited by recombination in electron cooler
vacuum ($p \leq 1 \times 10^{-10}$ mbar) is only
relevant at lowest energy or
for incompletely stripped ions

Beam Parameters: $\epsilon \simeq 10^{-3} - 10 \pi$ mm mrad
(depend on intensity) $\delta p/p \simeq 10^{-7} - 10^{-4}$
bunch length: 1 – 50 ns