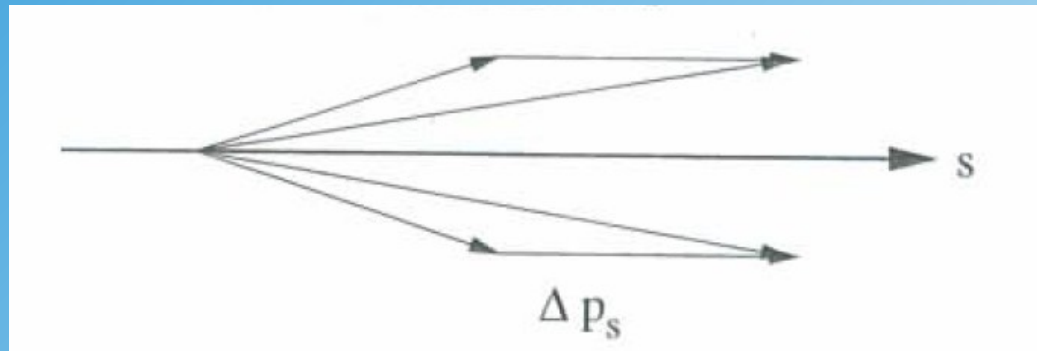


Accelerator Physics

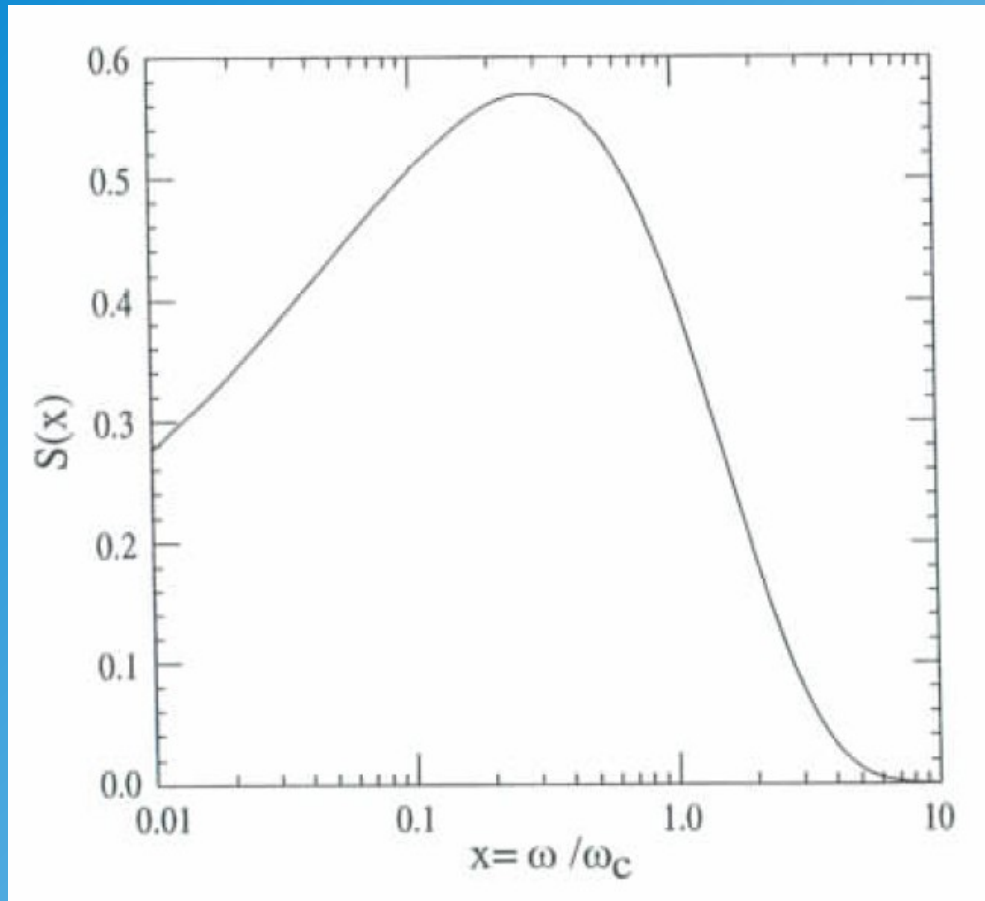
Lecture 9

- 
- A 3D rendering of an accelerator beam pipe. The pipe is a long, cylindrical structure with a series of curved, metallic-looking sections. Inside the pipe, a particle beam is shown as a glowing, multi-colored (red, green, blue) structure. The beam is surrounded by a complex, multi-colored (blue, green, red) structure that represents the phase space of the beam. The background is dark, with some metallic structures visible.
- Phase Space and Beam Cooling
 - Liouville Theorem
 - Adiabatic Damping
 - Synchrotron Damping
 - Electron Cooling

Adiabatic Damping

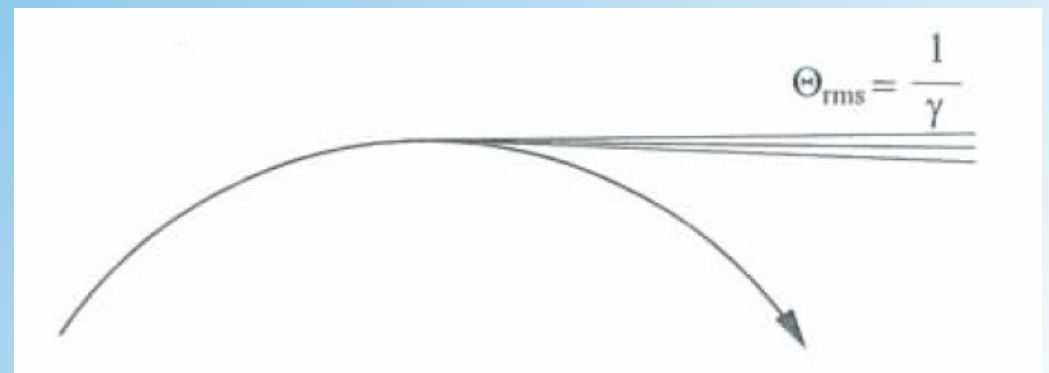


Synchrotron Radiation Damping



photon energy spectrum

emission of light



Electron Cooling

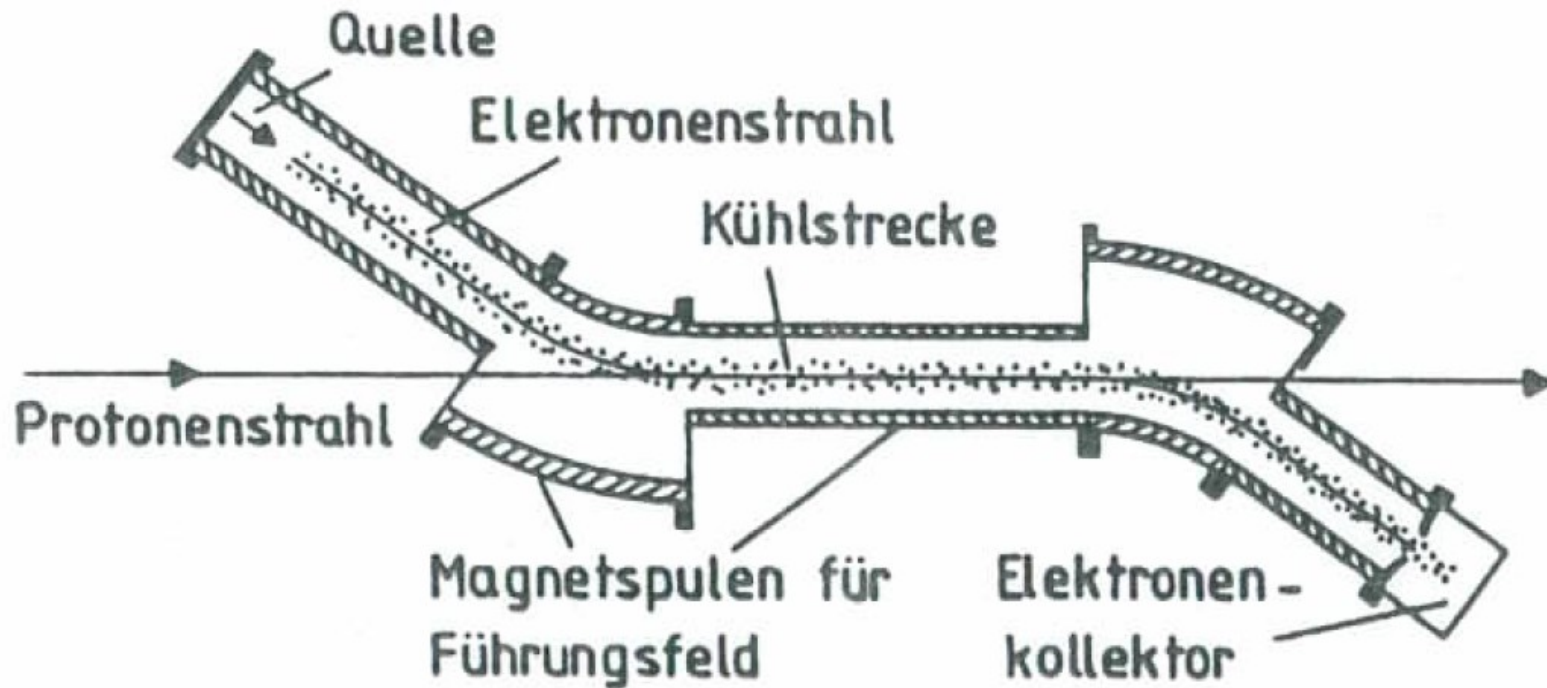
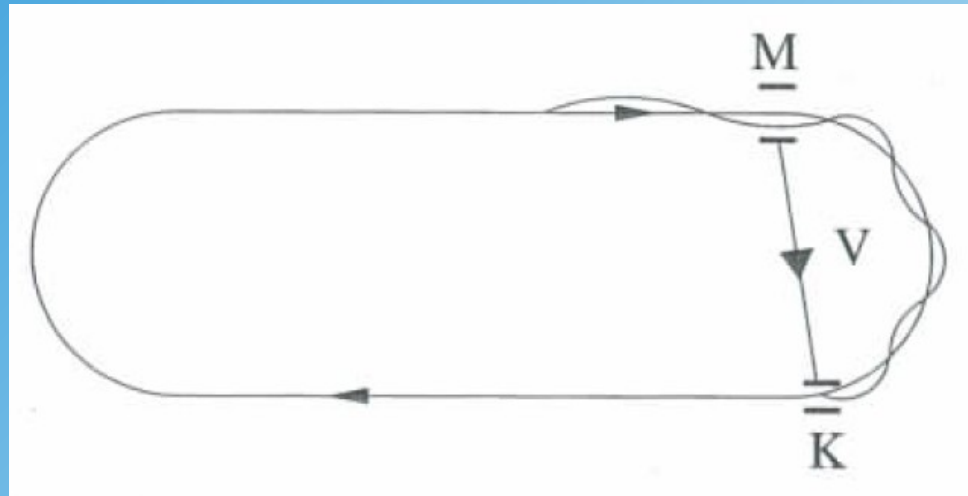


Abb. 10.5. Schema eines Elektronenkühlers. Die Länge der Kühlstrecke liegt üblicherweise bei 1 m bis 2 m

Stochastic Cooling

M=Monitor



K = Kicker Magnet

