Wire chamber ageing and current limit

- General wire chamber ageing limit: $Q/l < 10\,\text{C/m}$.
  Q = accumulated charge, l = wire length.

- H1 CJC1: $30 \cdot 24 = 720$ wires, length 2.2 m
  $\Rightarrow l = 1584\,\text{m}$

- $Q = \int I \; dt = \overline{I}_{\text{CJC1}} \cdot T_{\text{HERAII}}$

- 5 years at 30% duty cycle: $T_{\text{HERAII}} = 5 \cdot 10^7\,\text{s}$

- $\Rightarrow \; \overline{I}_{\text{CJC1}} \; < \; 320\,\mu\text{A}$

- The H1 CJC has suffered in the past from ageing effects in form of reduced gain and efficiencies due to deposits on the anode wires.
  Major re-wireings were done in 1998 and 2000.
  Therefore, lower chamber currents are advisable.