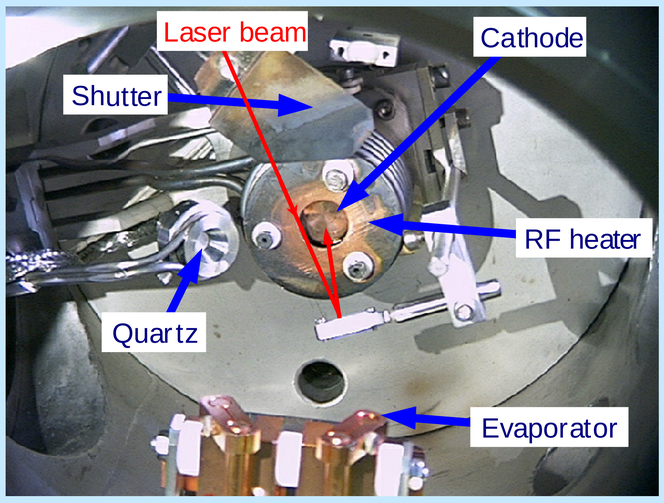
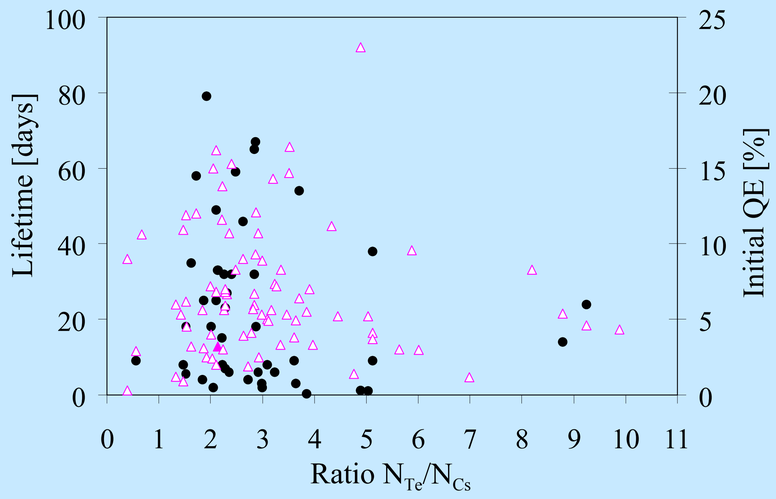
Questions on the stoichiometric ratio

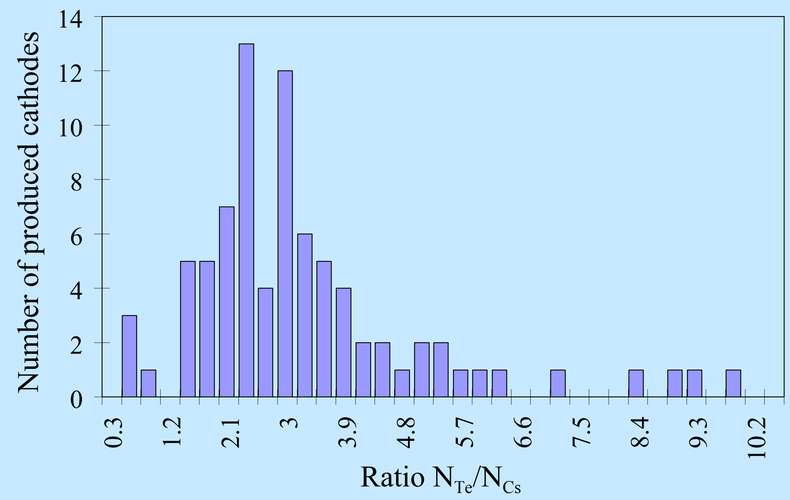
The stoichiometric ratio for Cs_2Te is $N_{Cs}/N_{Te}=2$. However, measuring the ratio between the evaporated species, we achieve maximum QE mostly around $N_{Cs}/N_{Te}=0.5$.
Possible Explanations:

- Copper "eats up" the first evaporated Te, but: The ratio isn't change by increasing the Te-layer thickness.
- Cs_xTe_y is produced, with $x/y\neq 2$ (e.g. Cs_2Te_5 is stable, too).
- We are measuring wrong.

No correlation between atomic ratio, QE or lifetime could be found.







High Charge Test

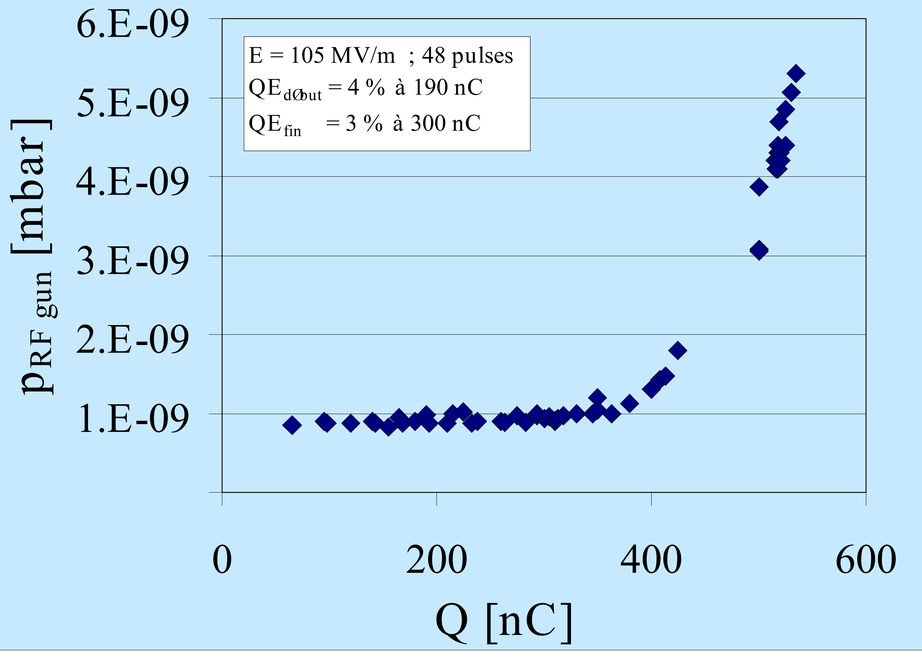
A test is under installation to produce 1 mA of average current in a DC gun. The cathode will be illuminated by a frequency quadrupled YLF laser.

	Unit	CTF3	0.5 TeV	1 TeV	3 TeV	Test 1 mC
Charge per micro-pulse	nC	2.4	11.7	11.7	17.5	
Number of micro-pulses	-	2145	10720	21440	42880	
Duration of the macro-pulse	µs	1.4	23	46	92	150 ns
Charge of the macro-pulse	µC	5.2	125	250	750	1.1
Repetition frequency	Hz	5	200	150	100	6 kHz
Average current	mA	0.026	25	37.6	75	1
Minimal lifetime at QE>1.5%	h	100	24	24	24	To test
Average laser power	W	0.008	7.7	11.5	23	0.3

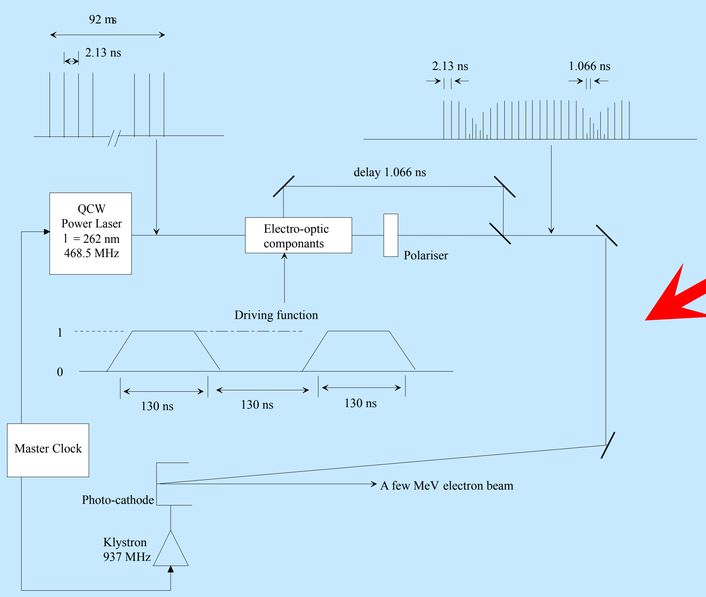
Problems:

- local heating
- ablation
- vacuum

Test of pressure rise in the RF gun in CTF II



Development for a CLIC drive beam laser
Collaboration Rutherford Appleton Laboratory / CERN



Temporal structure of the macro pulse

Basic laser setup

(courtesy of I. Ross / RAL)