

Multi-bunch RF Gun *Test Experiment*

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- Purpose of Test Experiment
- Experimental Setup
- Load-lock System
- Cs₂Te Evaporation
- Schedule of this summer

Purpose of Experiment

We confirmed the following things last Summer (Jul ~ Sep/2002)
at single bunch RF Gun.

Horizontal Emittance was 13.3π mm mrad.
100% transmission from Gun to DR.
Vertical orbit jitter was less than 55μ m .
No bunching tail , etc

But JLC and our operation need Multi-bunch beam . Therefore we confirm the above things at Multi-bunch RF Gun and compare with Thermionic gun .

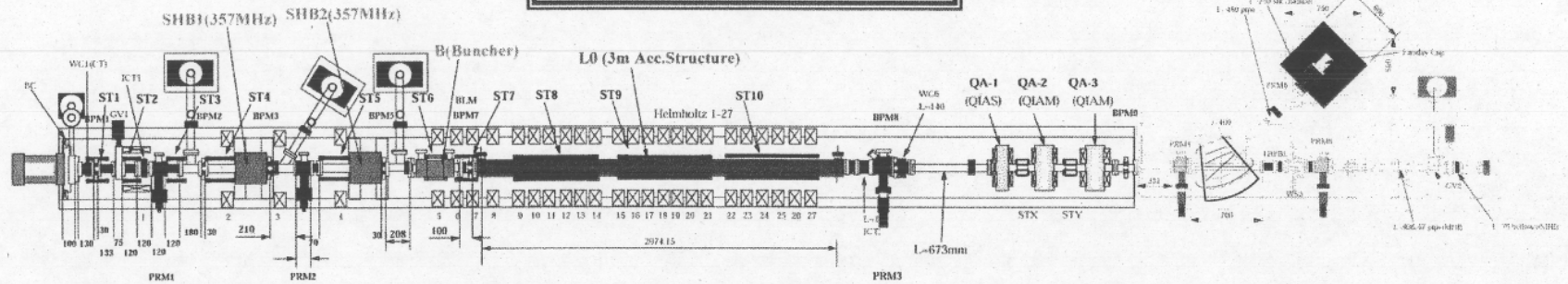
If we can establish a good performance of multi-bunch RF Gun , we will select a RF Gun to ATF Injector from this autumn operation.

What we need for Multi-bunch RF Gun ?

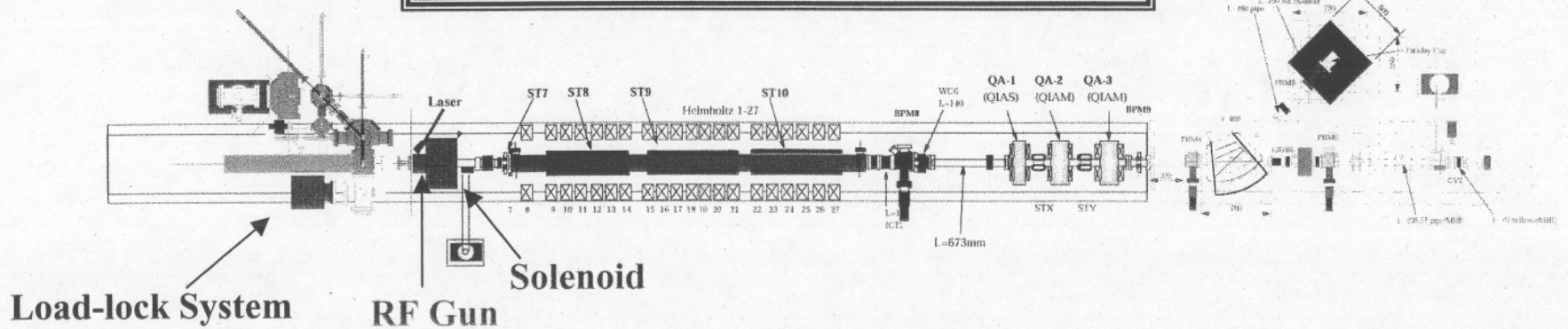
Multi-bunch laser and New cathode with High quantum efficiency .

Experimental Setup

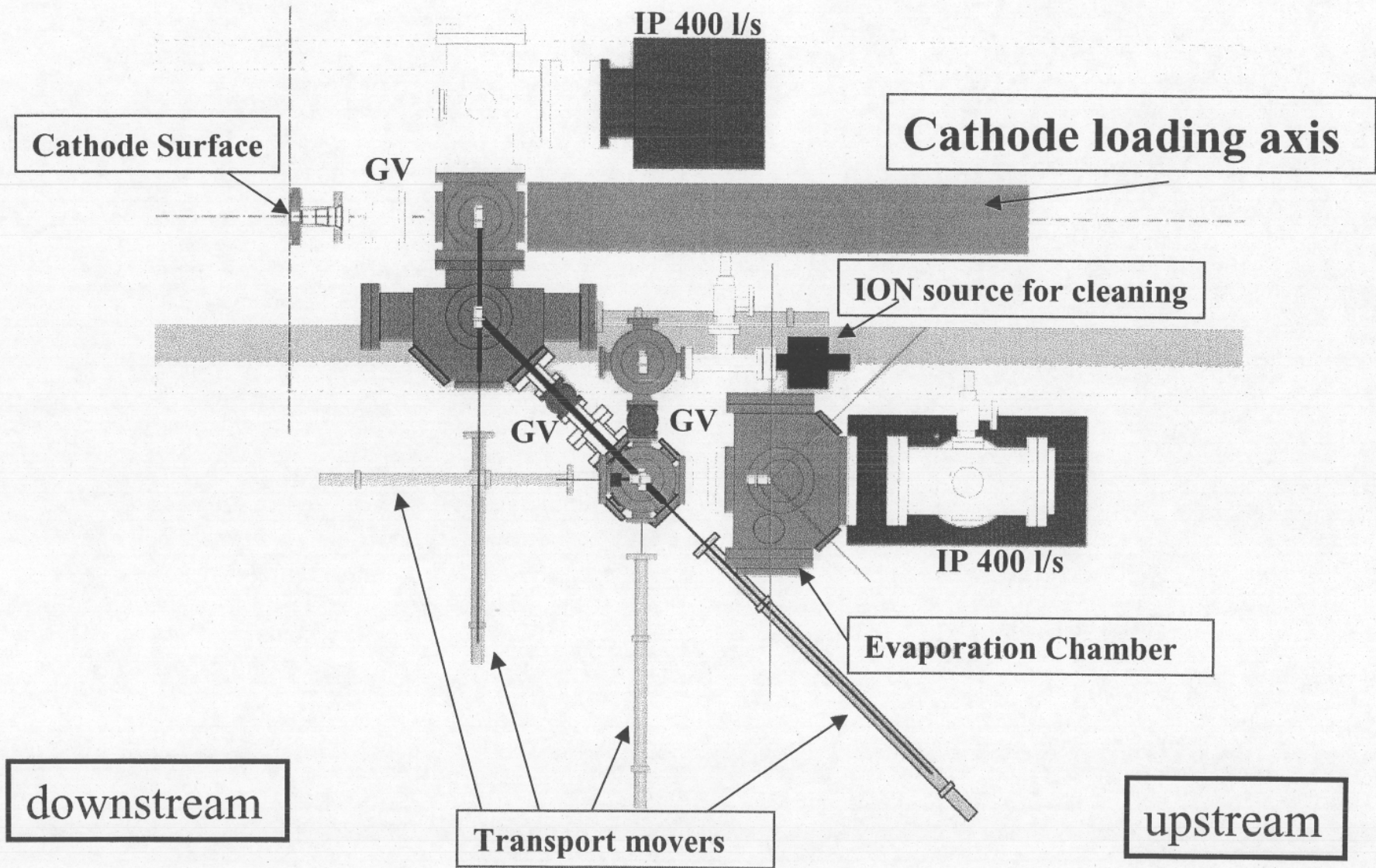
ATF Injector



ATF Injector (Jun ~ Oct.2002)

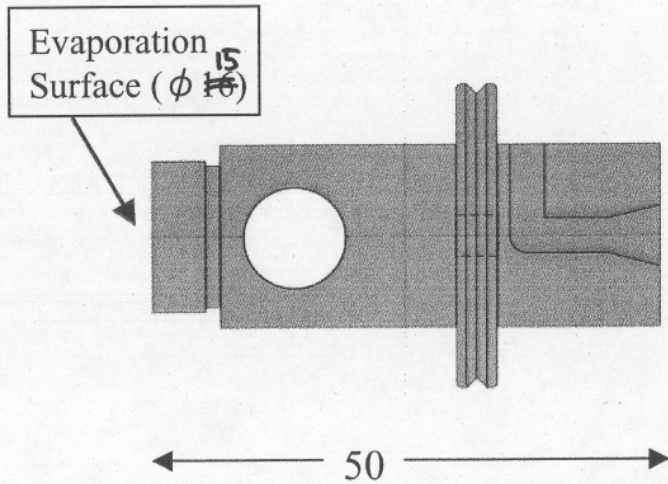


Load-Lock System

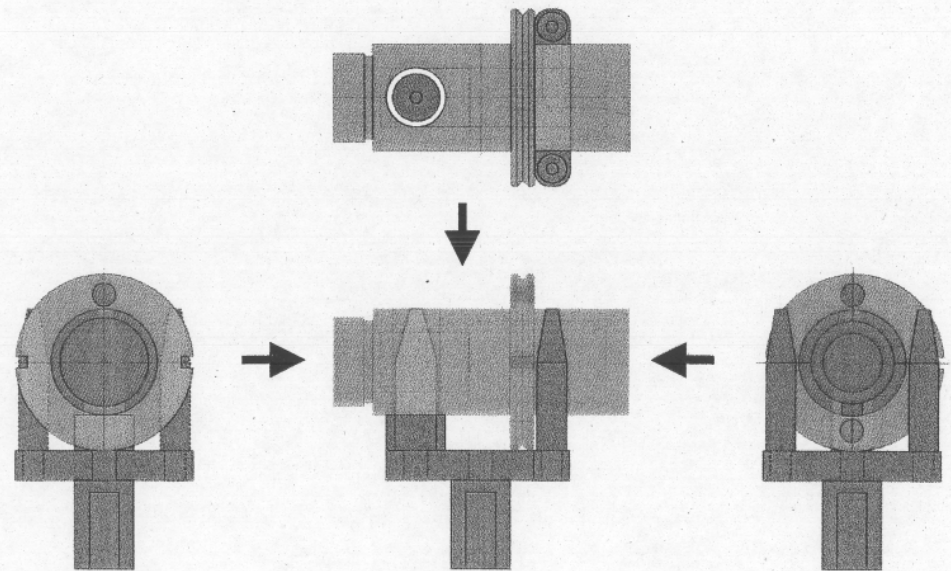


Cathode and Support

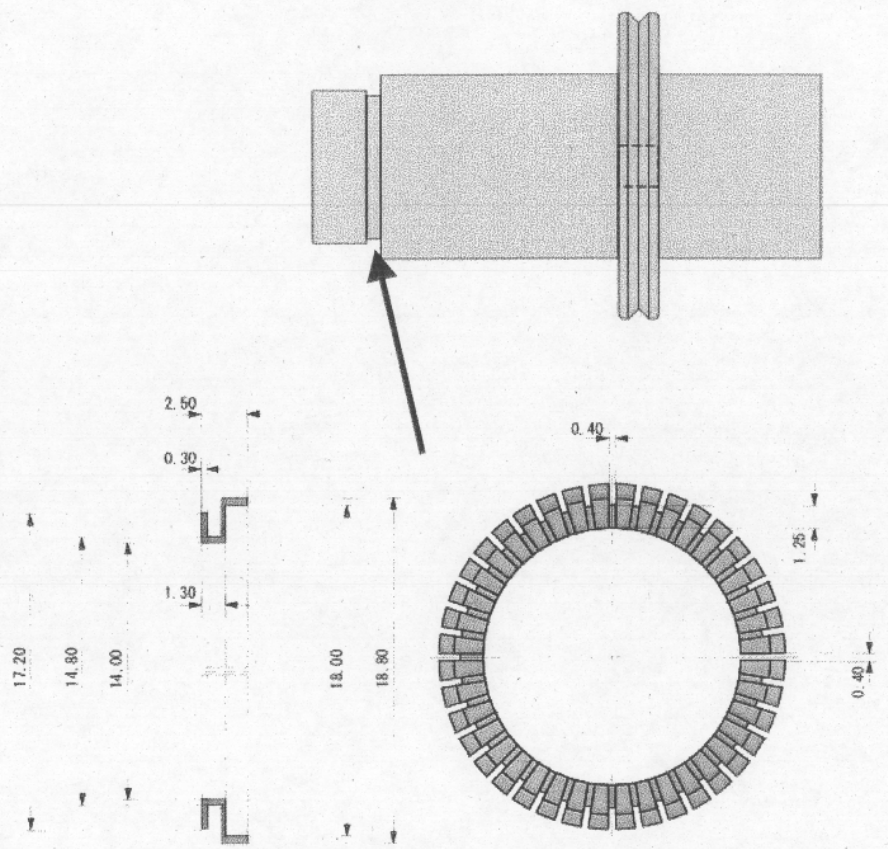
Cathode (Mo)



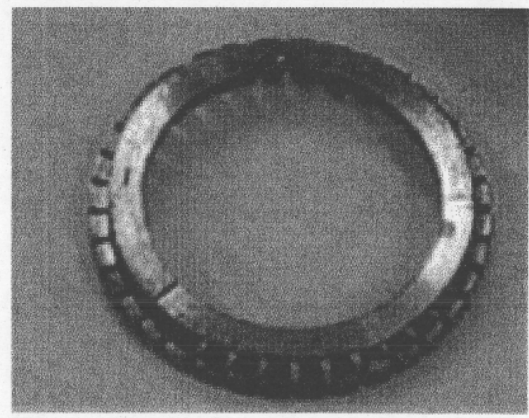
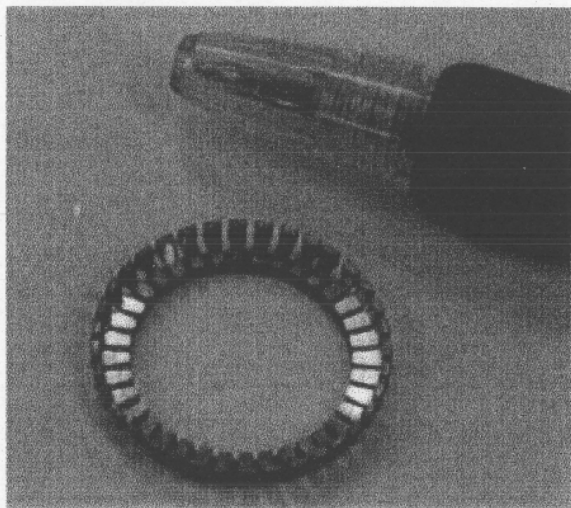
Support (SUS304)



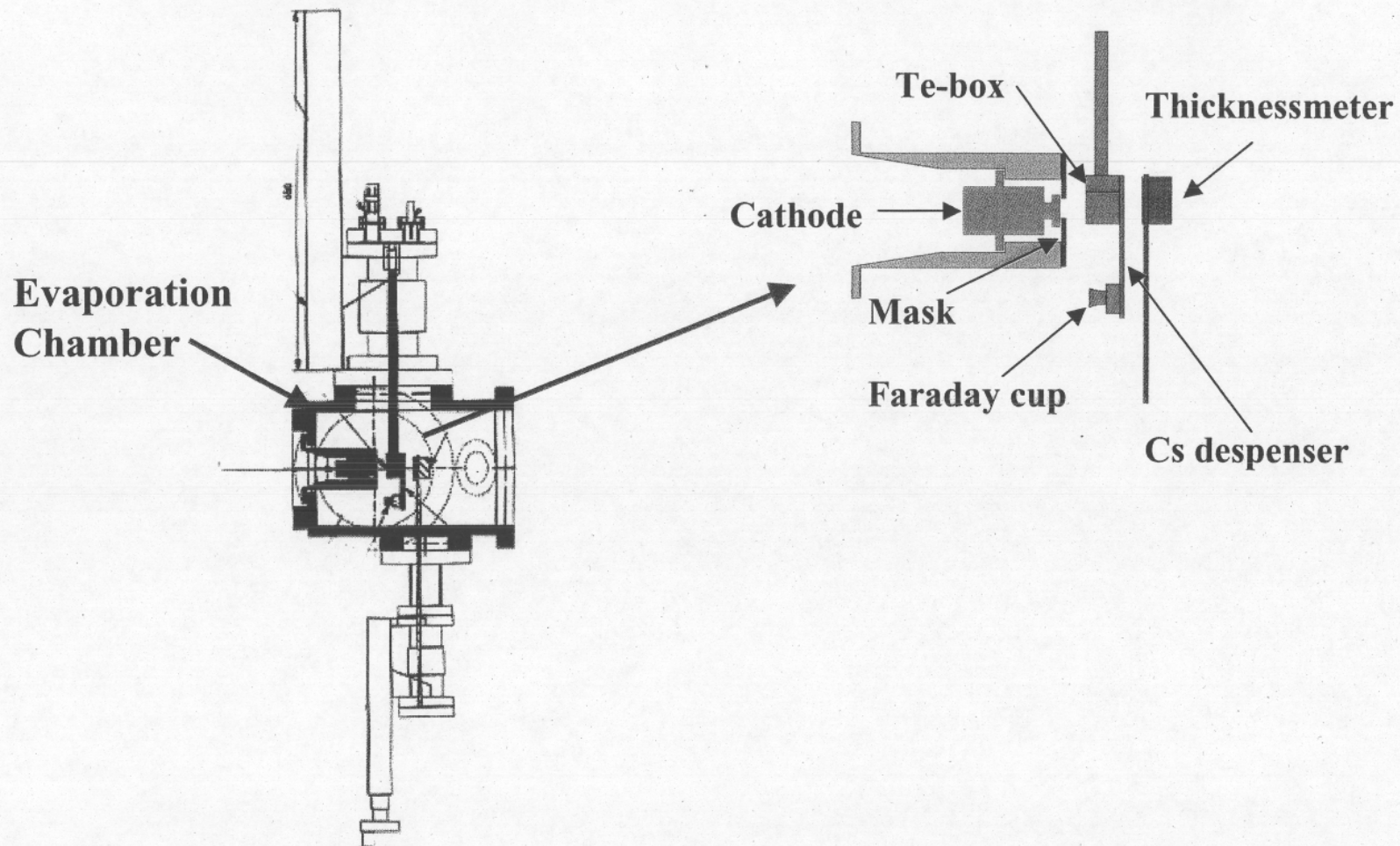
RF Contact



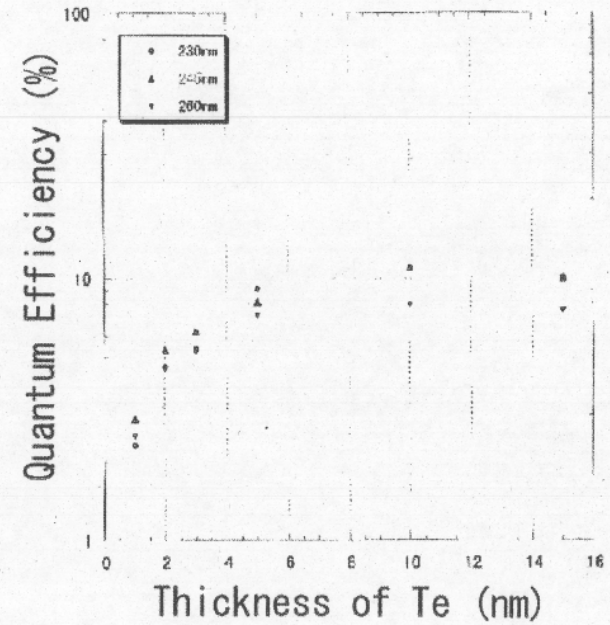
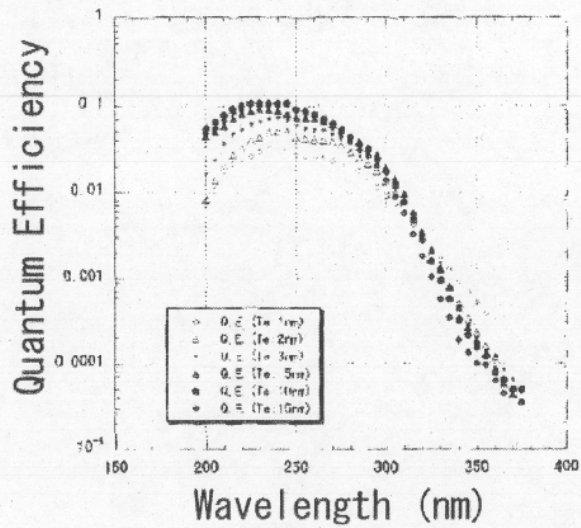
Cathode Contact (BeCu,CTF Type)



Cs₂Te Evaporation



Quantum Efficiency



Wavelength : $\lambda = 266 \text{ nm}$

$\therefore \text{Te} = 10 \text{ nm}$

Schedule of this summer

July

- **RF Gun** : Baking and RF Processing.
- **Load-lock** : Assemble ,Performance Test and alignment.
- **Laser** : Performance measurement of The GE-100-XHP(Time-Bandwidth,IR) and improvement of Amplifier system.

August

- **RF Gun and Load-lock** : Assemble at Linac Tunnel and alignment.
- **Laser** : improvement of Amplifier system .

September

- Muti-bunch RF Gun Experiment