LOW VOLTAGE

NUCLEAR TRANSMUTATION

WORK IN PROGRESS

(Completion expected by June 2004 if sponsor is found)

by

KEN SHOULDERS

Bodega, California

PROJECT GOALS

1. TO SHOW NUCLEAR TRANSMUTATION USING EVs OPERATING AT LOW VOLTAGE
2. TO PRESENT DATA IN MASS SPECTROMETRIC FORM
3. TO DEFINE THE TRANSMUTATION PATHWAY
4. TO PROVIDE A VERY LOW-COST MASS SPECTROMETER DESIGN FOR EASY CONSTRUCTION AND OPERATION BY ANYONE HAVING INTERMEDIATE SKILLS

DEMONSTRATION METHOD IN BRIEF

1. A sample of chosen material, such as, aluminum oxide, is placed in a miniature reactor vessel that can be periodically accessed by an ion trap type of mass spectrometer.
2. The material is reacted with EVs generated by a spark process allowing long, EV boring type runs through the material.
3. After a few seconds of reaction time, the material is sampled by the mass spectrometer. This sampling process requires only a fraction of a second and then the sample record is stored for later reference.
4. The reaction is continued for several minutes with periodic sampling to determine accumulated changes occurring in the mass spectrum as indicated by isotope shift.
5. When a comparison with the previous samples shows that isotopes are being shifted or translated, the spectrometer is adjusted to follow chosen peaks more closely.
6. When the reaction is terminated after a few minutes, the operator can open the reactor chamber and remove the newly translated material for further analysis on a different type of instrument.

REACTOR TYPES

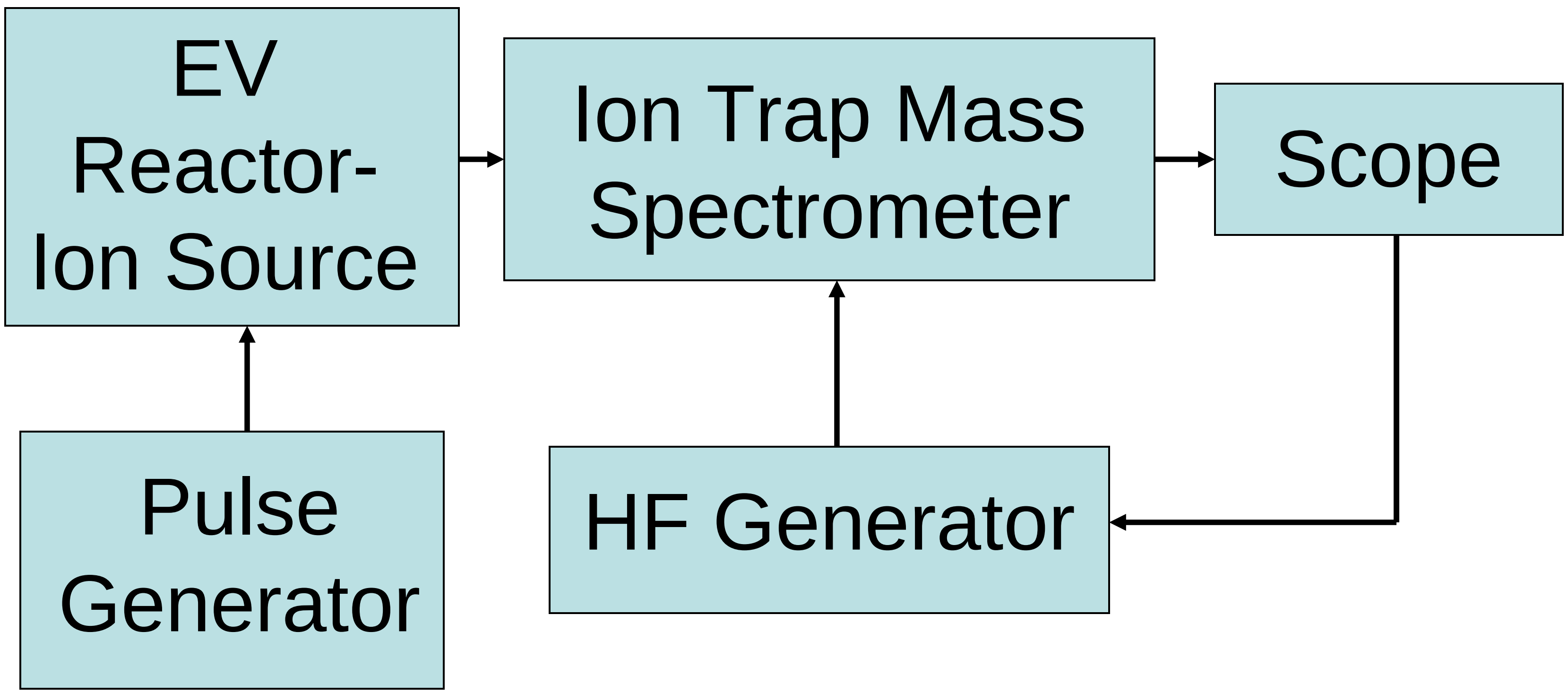
METAL "BLACKS"

Metal blacks are "splattered" or sputtered into the volume of the reactor giving a highly interactive path for EVs. These materials are similar to almost all successful cold fusion surfaces or EV targets (see "EVs in Cold Fusion" by Ken Shoulders). Although the EV interaction is initially high, the blacks are soon consolidated into surface films consisting of islands like those shown in the SEM photos below. This resultant film has low EV interaction efficiency and is equivalent to a bulk metal.

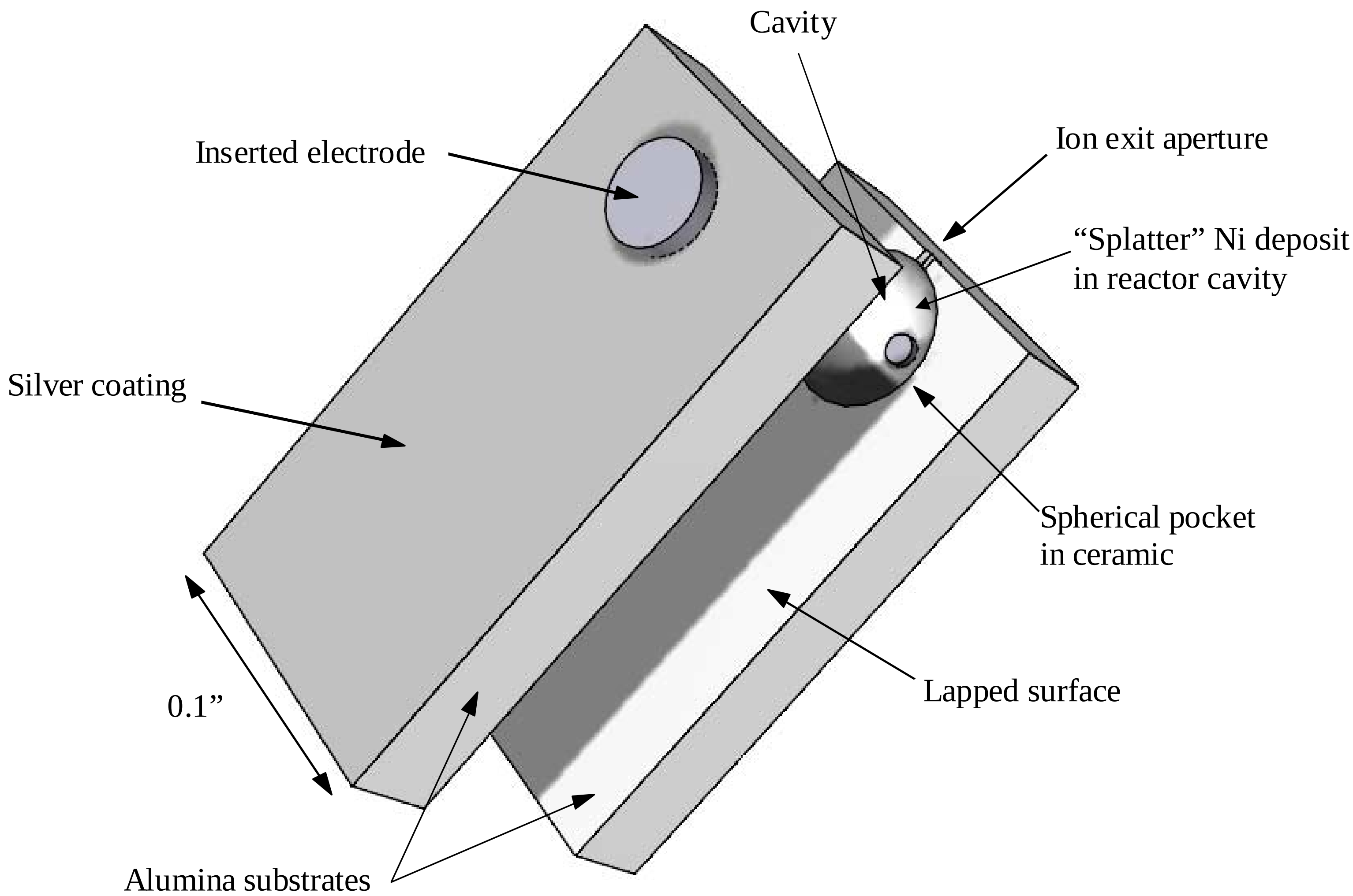
POWDER BORING

Various compounds in the reactor, in dispersed form and usually semiconductor compounds or metal oxides, can be bored by EVs with high efficiency (see "Charge Clusters in Action" by Ken Shoulders). These materials are good candidates for nuclear transmutation studies although they give results that are more difficult to interpret than simple metals due to the higher nuclear complexity of the starting material.

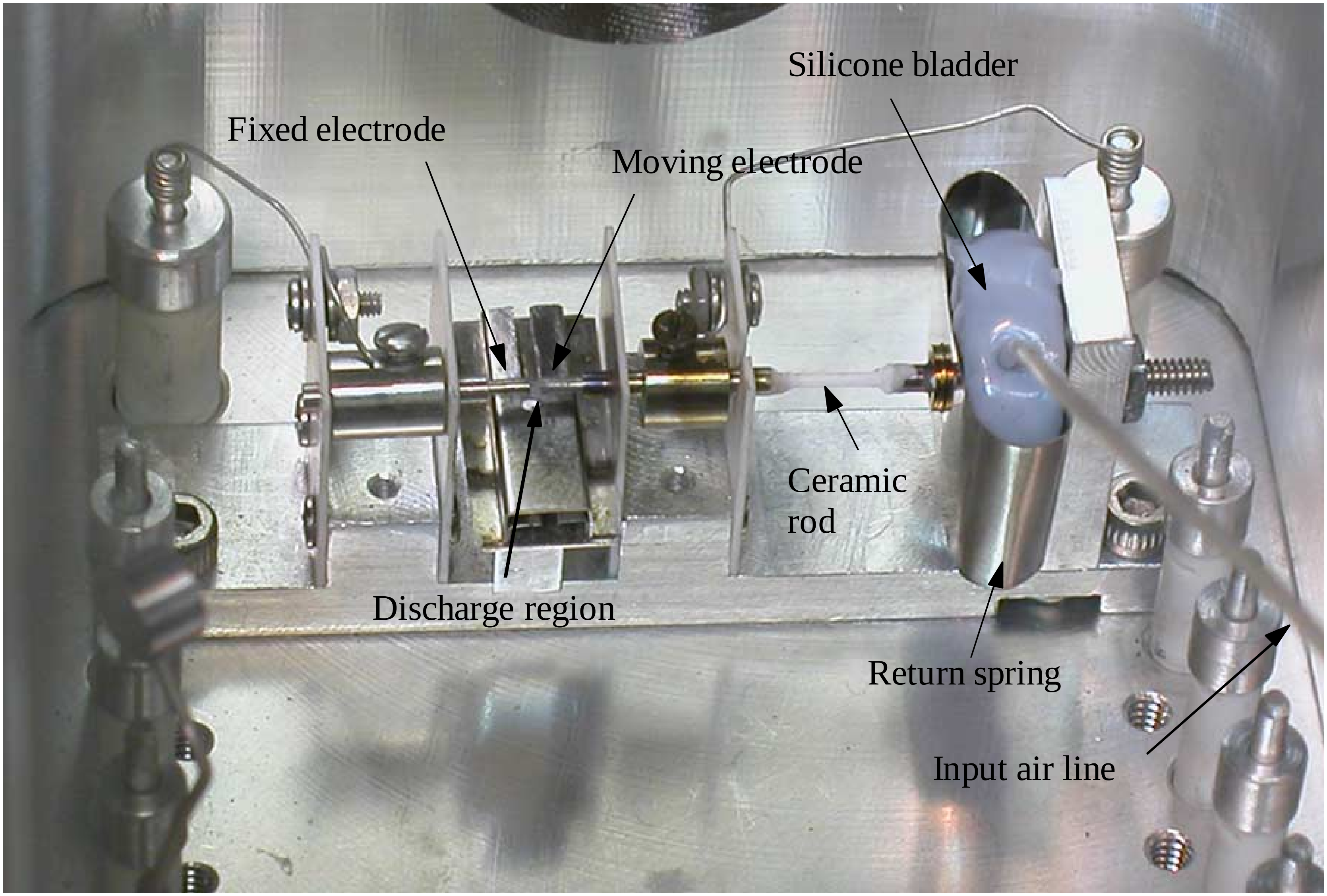
BASIC APPARATUS



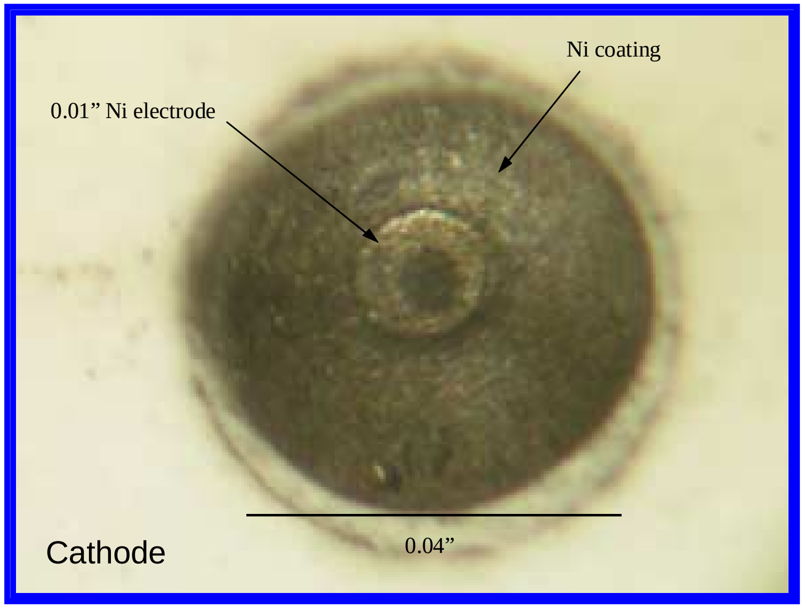
EV REACTOR - ION SOURCE

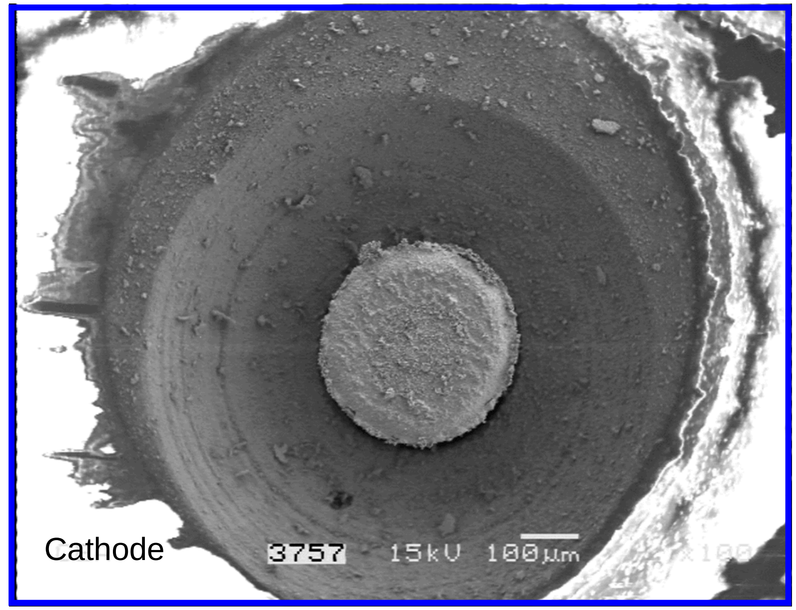


“SPLATTER” DEPOSITION SOURCE



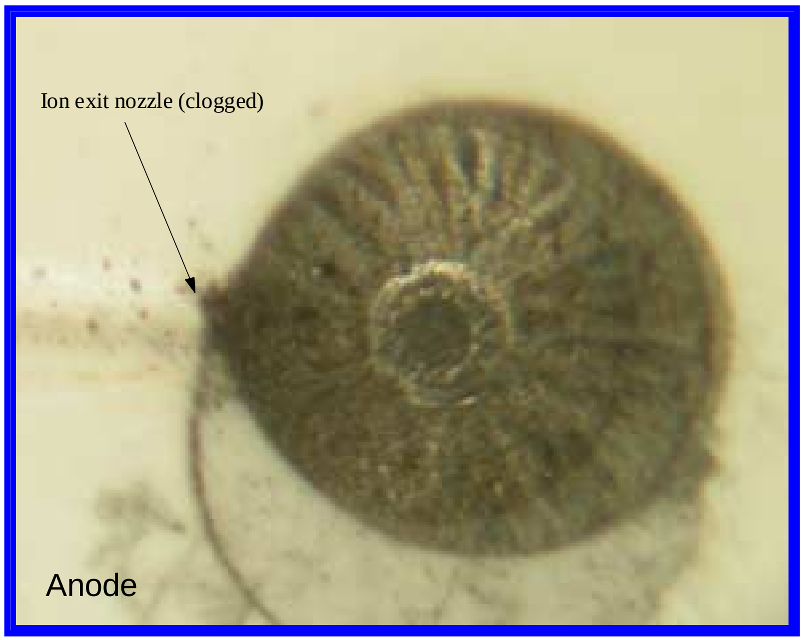
CONSOLIDATED NICKEL DEPOSITS IN CAVITY

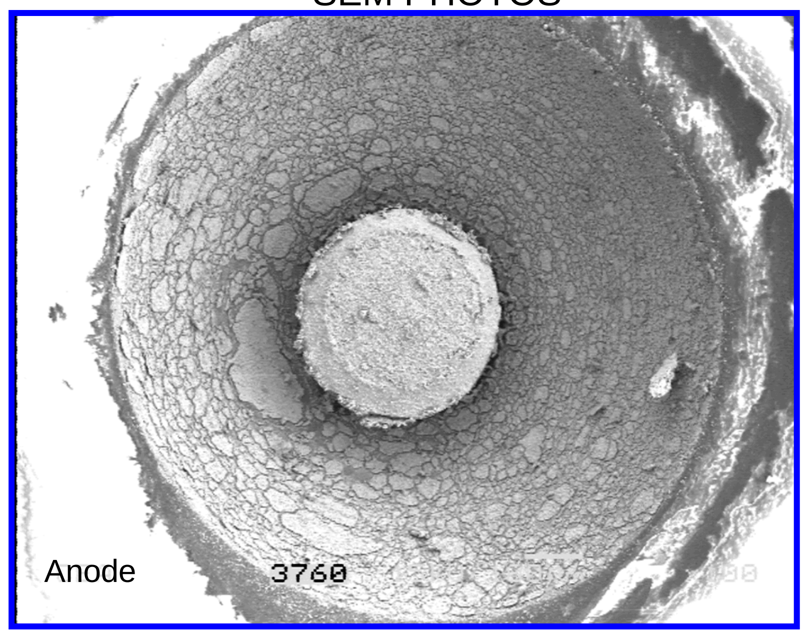




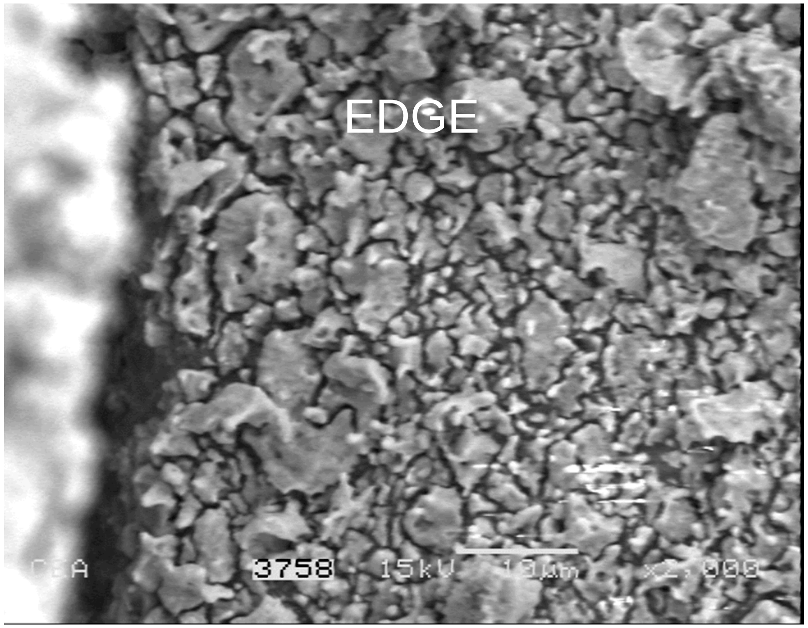
OPTICAL PHOTOS

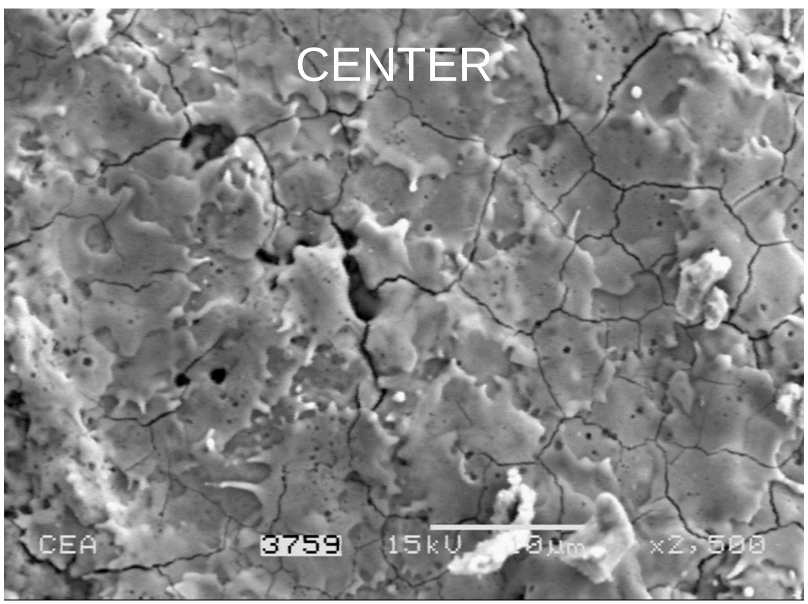
SEM PHOTOS



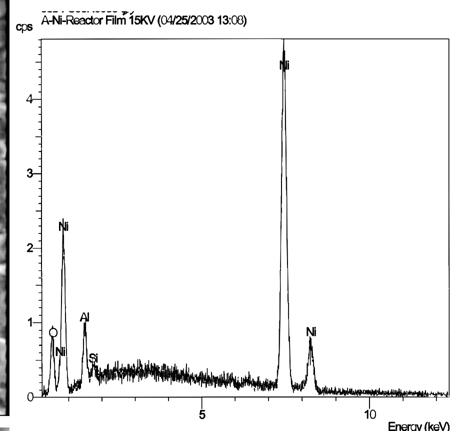


SEM AND X-RAY ANALYSIS OF REACTOR FINAL CONTENT

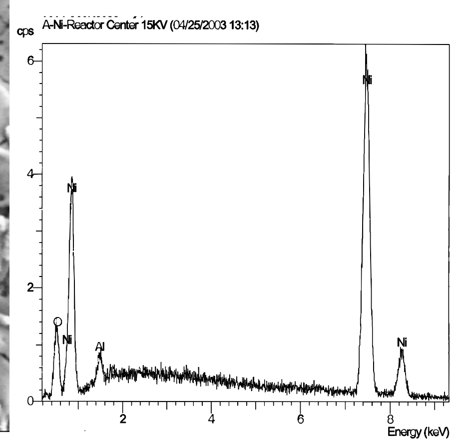




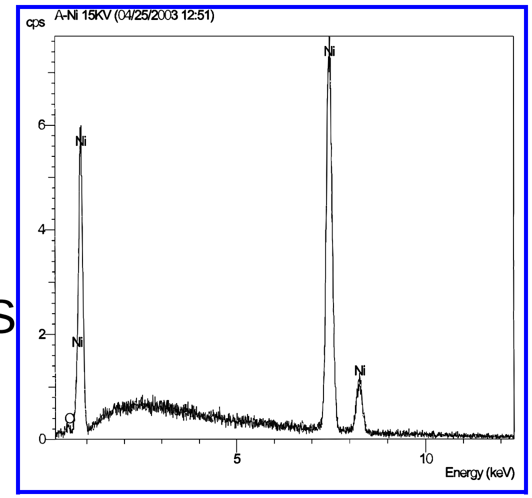
EDGE ANALYSIS



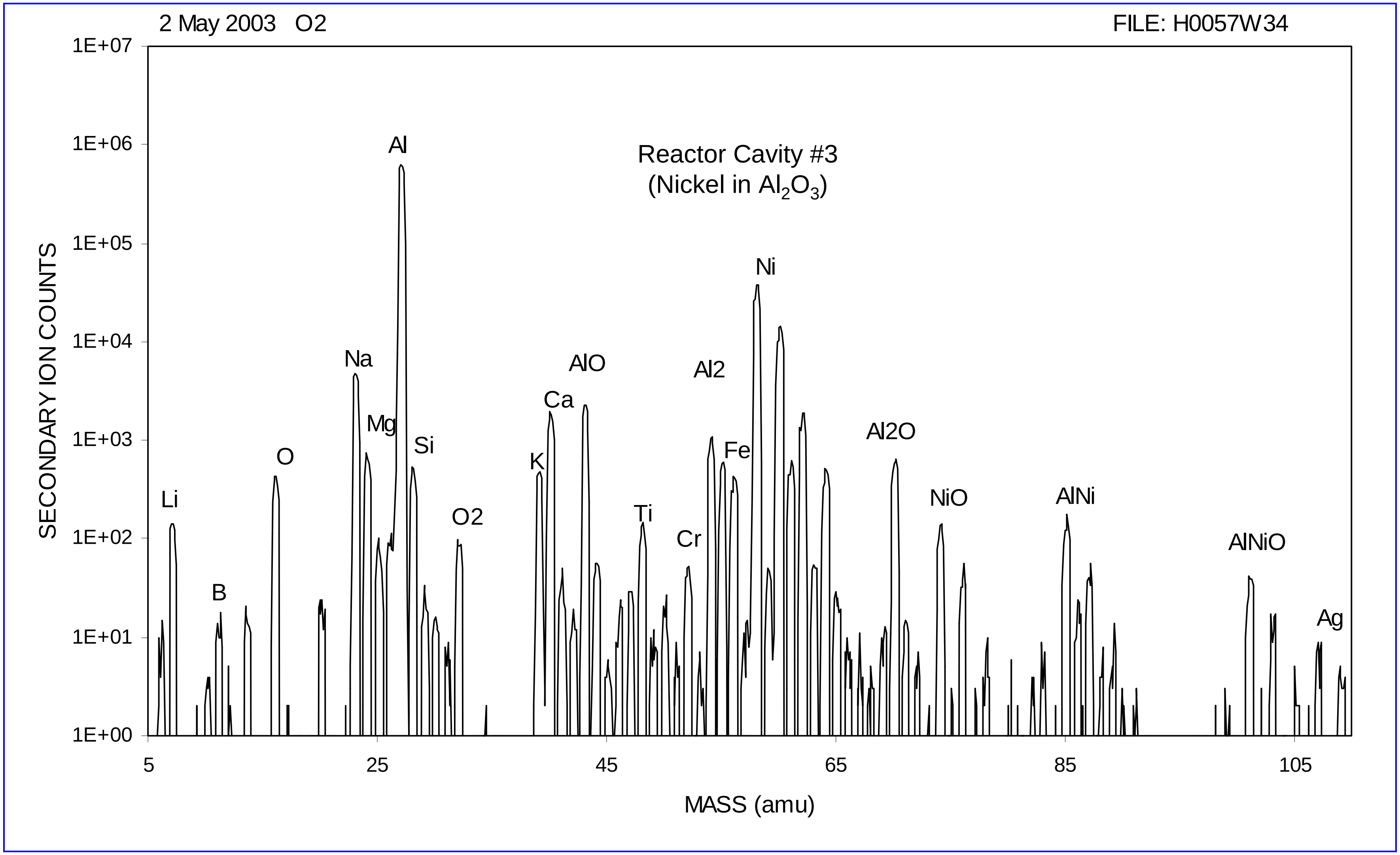
CENTER ANALYSIS



PARENT MATERIAL ANALYSIS



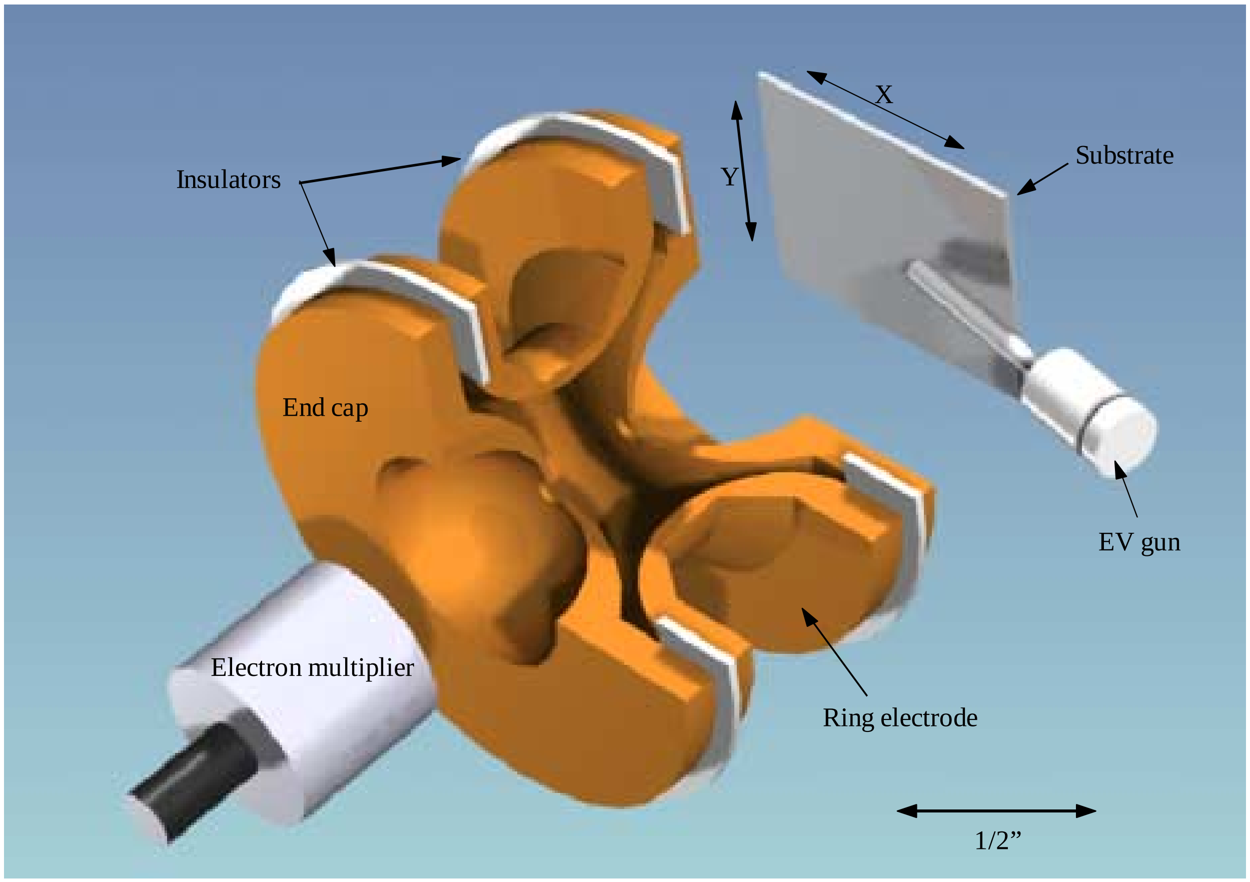
SIMS ANALYSIS OF REACTOR FINAL CONTENT BY C.E. EVANS ASSOC.



THE HARD WAY

1. FULL ELECTRONIC CONTROL
2. HYPERBOLIC ION TRAP ELECTRODES MADE OF METAL WITH ADDED INSULATORS
3. USE OF HIGH VACUUM PUMPING
4. SHIELDED EV ION SOURCE
5. COMMERCIAL ELECTRON MULTIPLIER
6. CASH OUTLAY ABOUT $8,000.00

NUCLEAR MASS MODIFICATION AND ANALYSIS USING AN EV GUN AND A QUADRUPOLE ION TRAP MASS SPECTROMETER

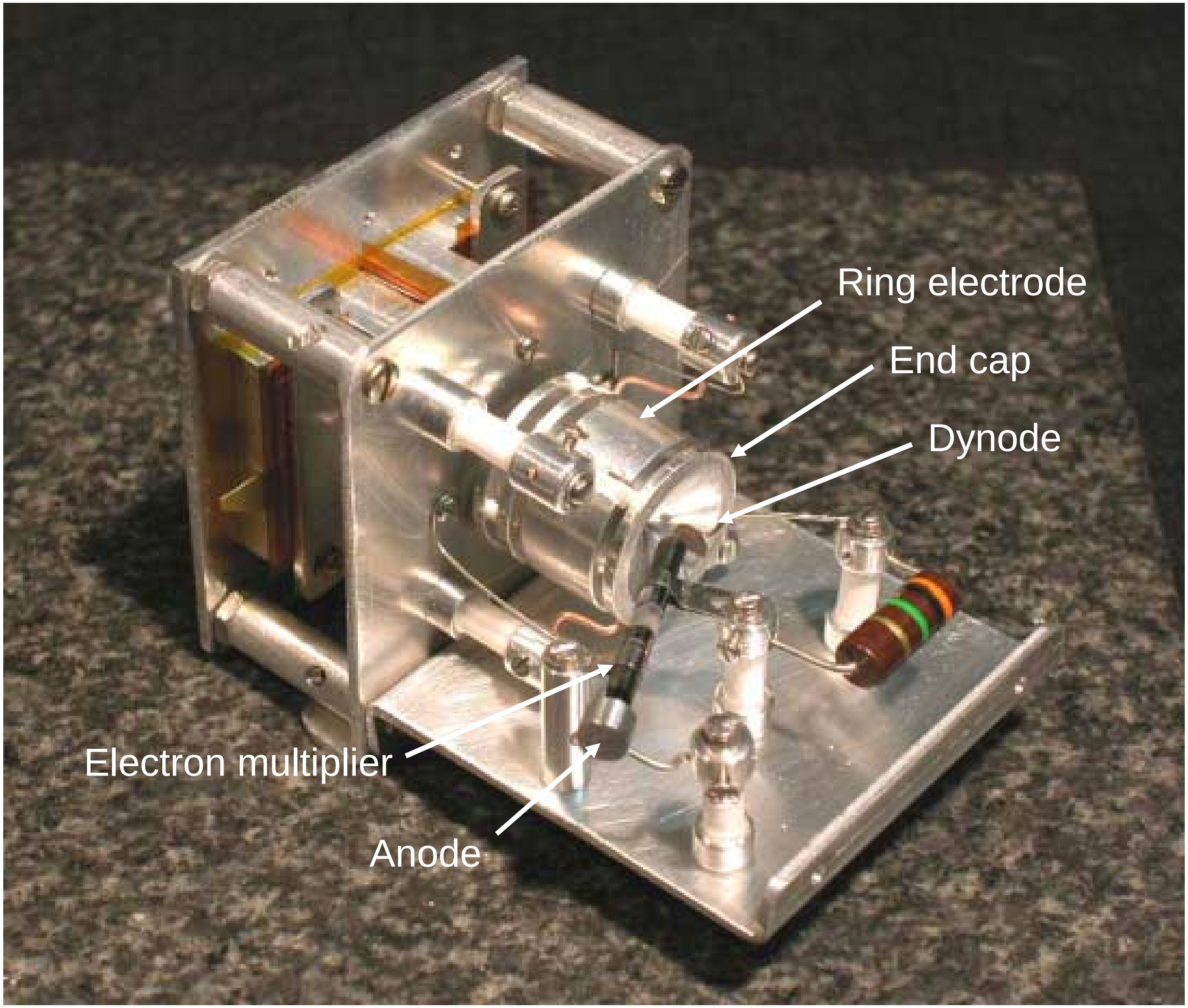


SCHEMATIC CUTAWAY OF ION TRAP MASS SPECTROMETER

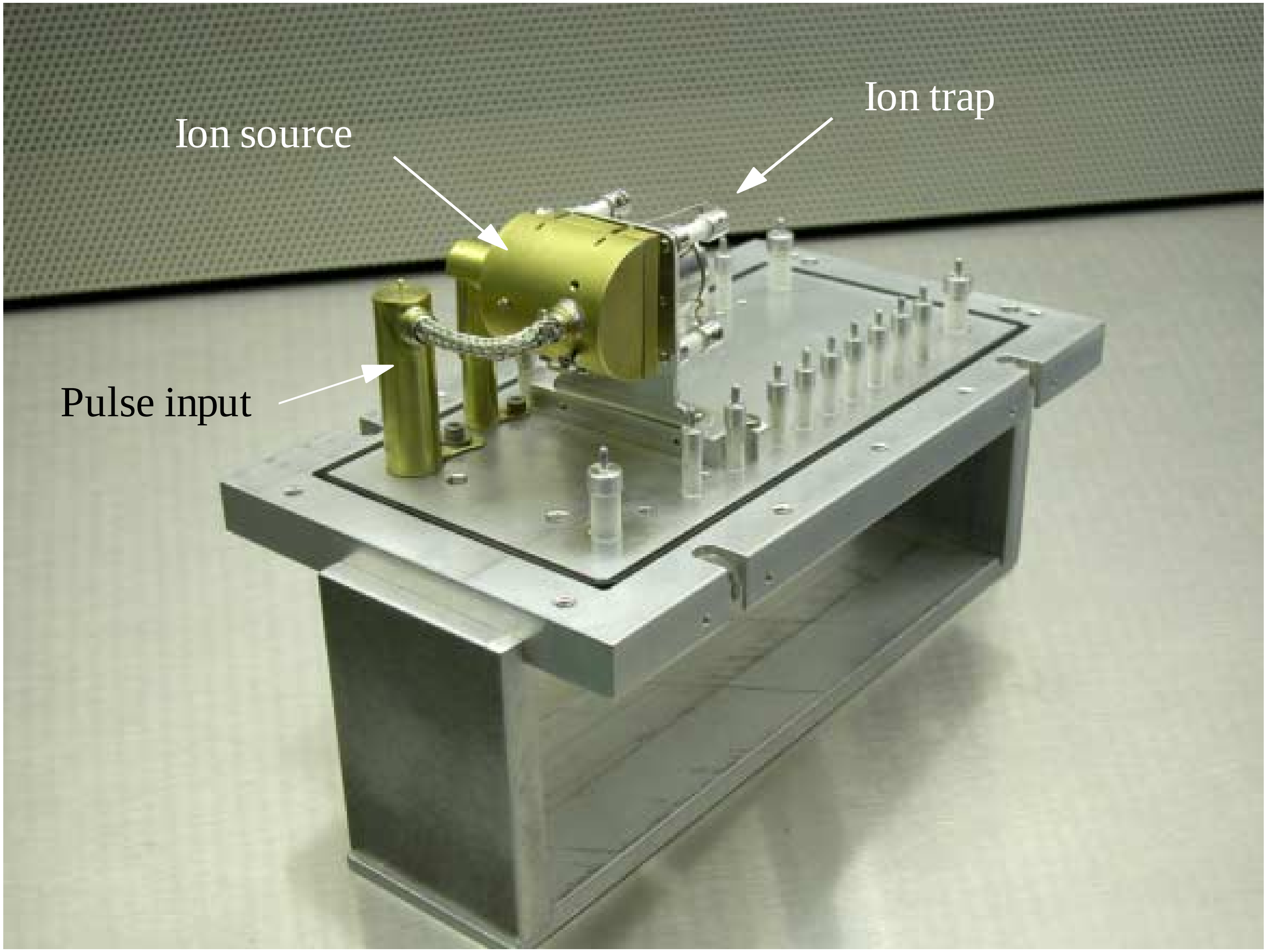
CAPABILITIES

- PRODUCTION OF NEW ISOTOPES BY EV BOMBARDMENT
- SHAPE ANALYSIS BY USE OF SCAN-NING ELECTRON MICROSCOPY (SEM)
- ISOTOPE ANALYSIS BY USE OF MASS SPECTROMETER
- MICROSECOND DURATION ISOTOPE LIFETIME MEAS.
- X-RAY AND FAST NEUTRAL PARTICLE MEASUREMENT.

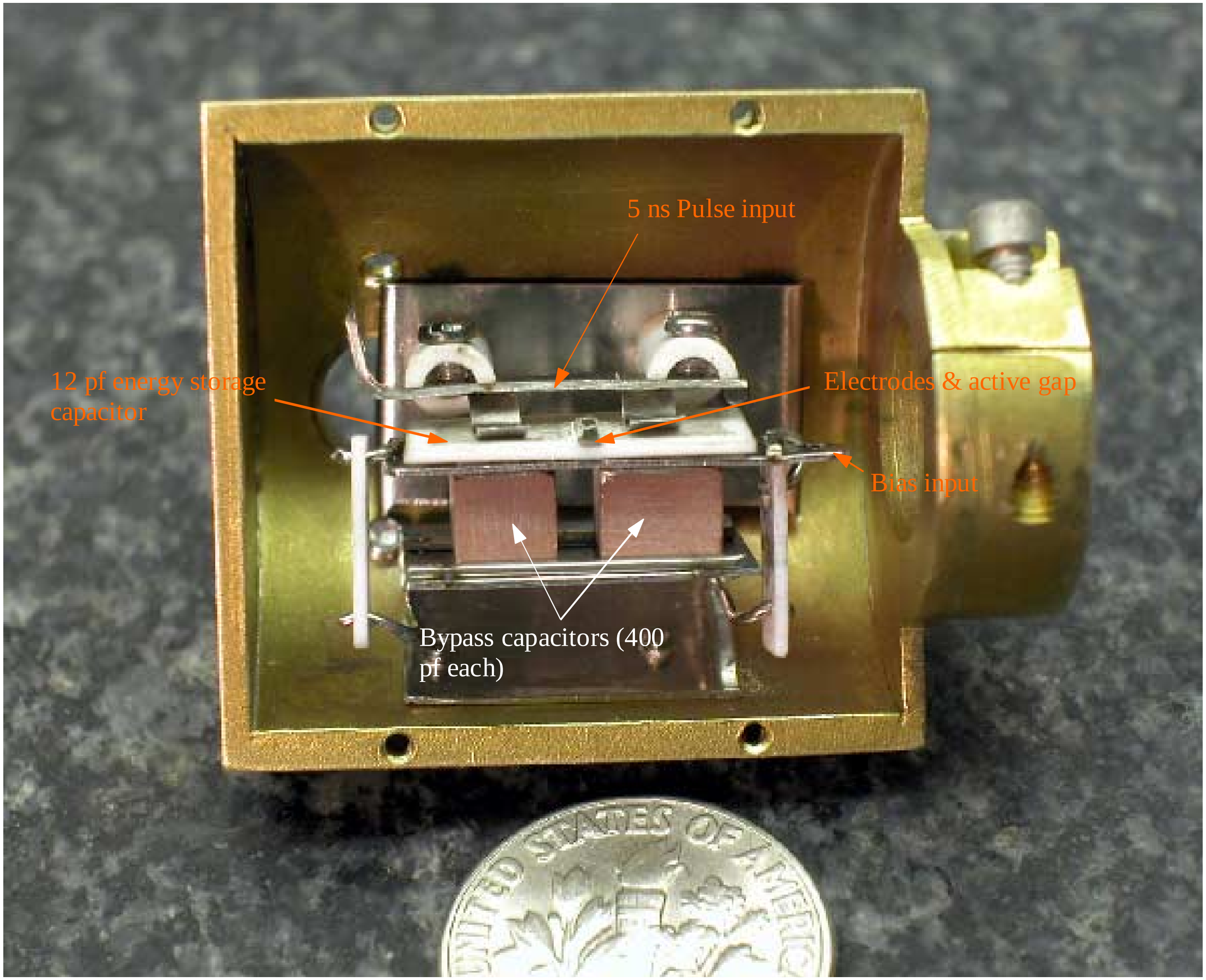
ION TRAP MASS SPECTROMETER



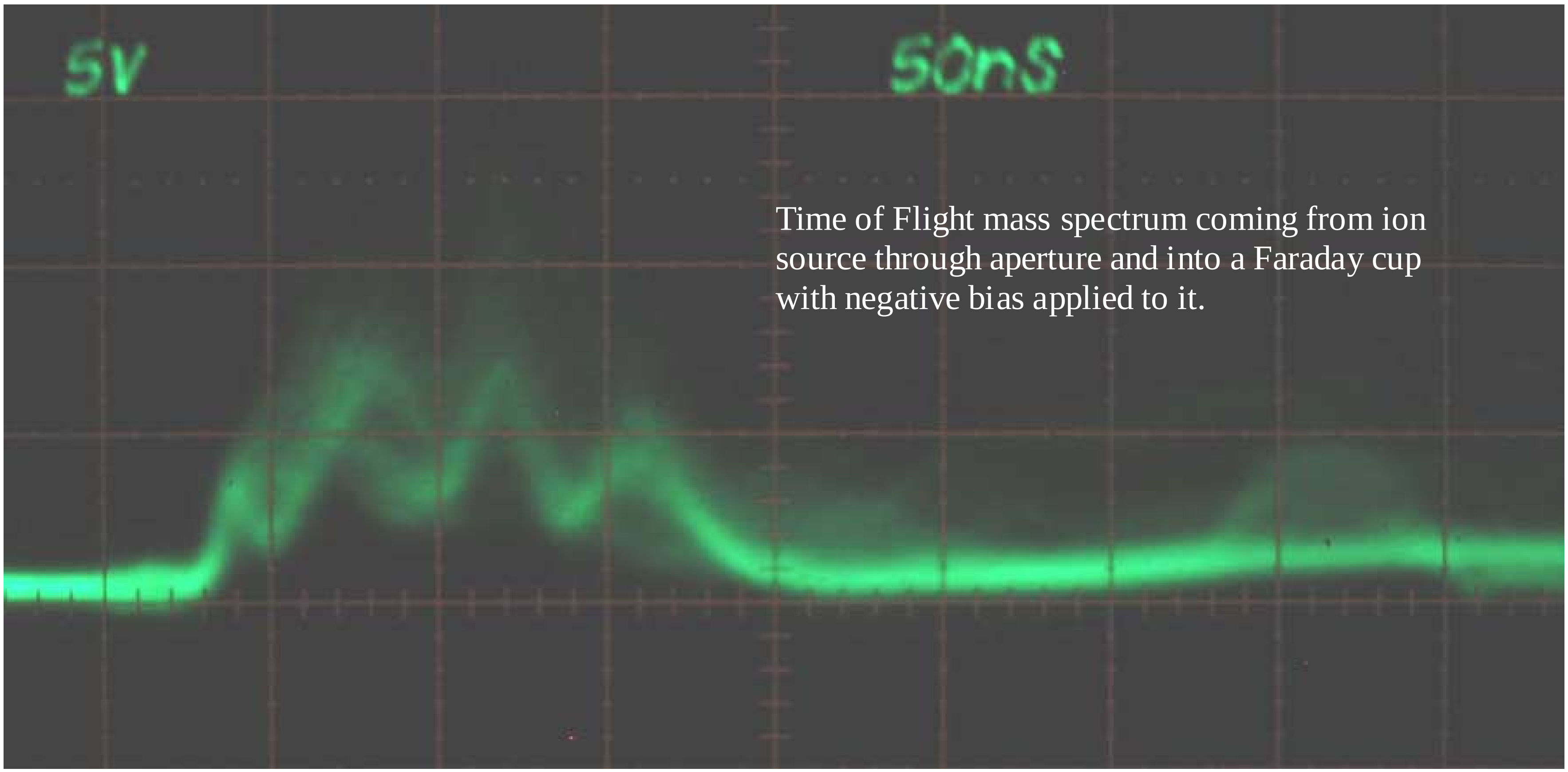
EV ION SOURCE AND ION TRAP



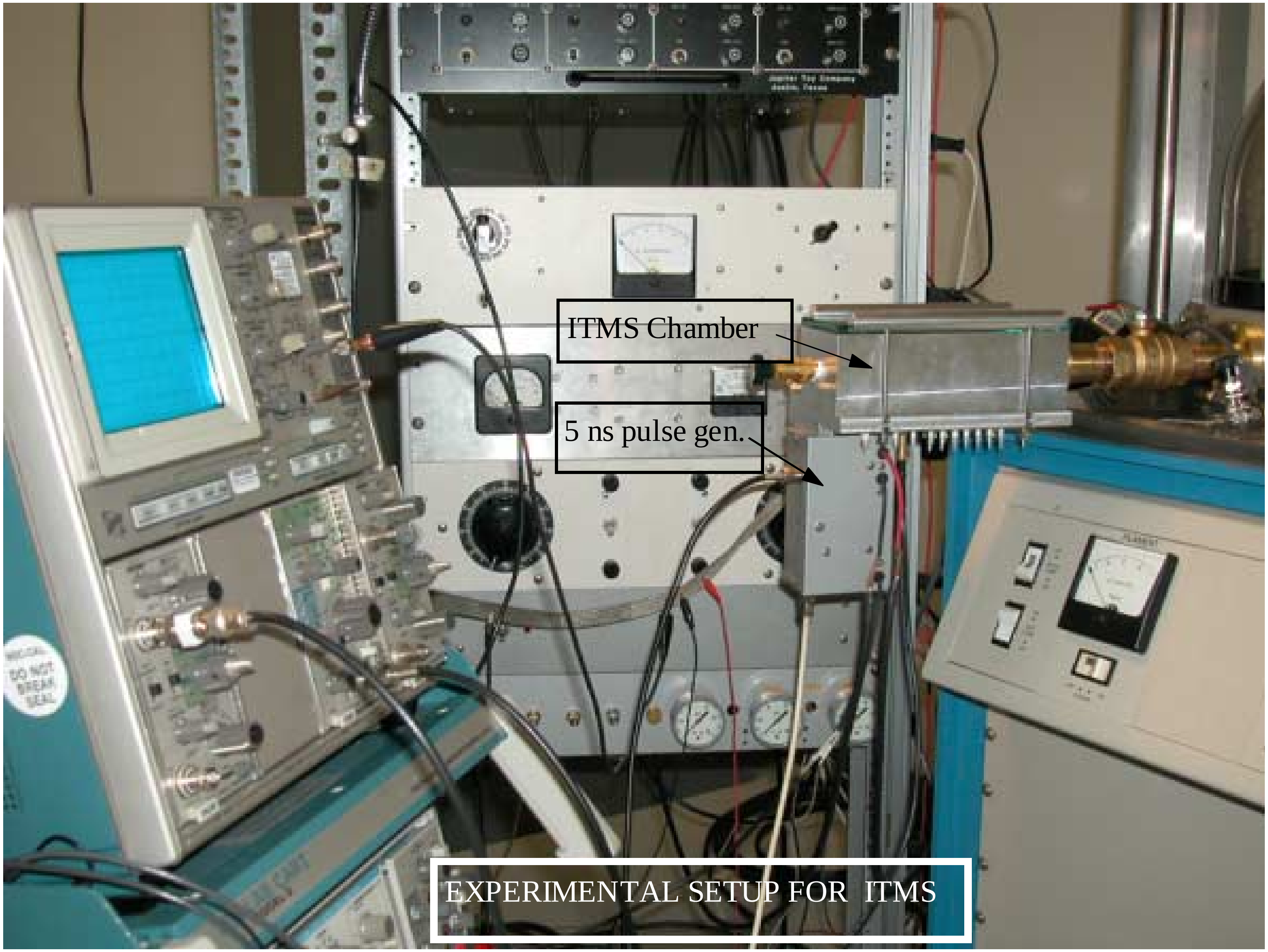
EV REACTOR ION SOURCE DETAILS



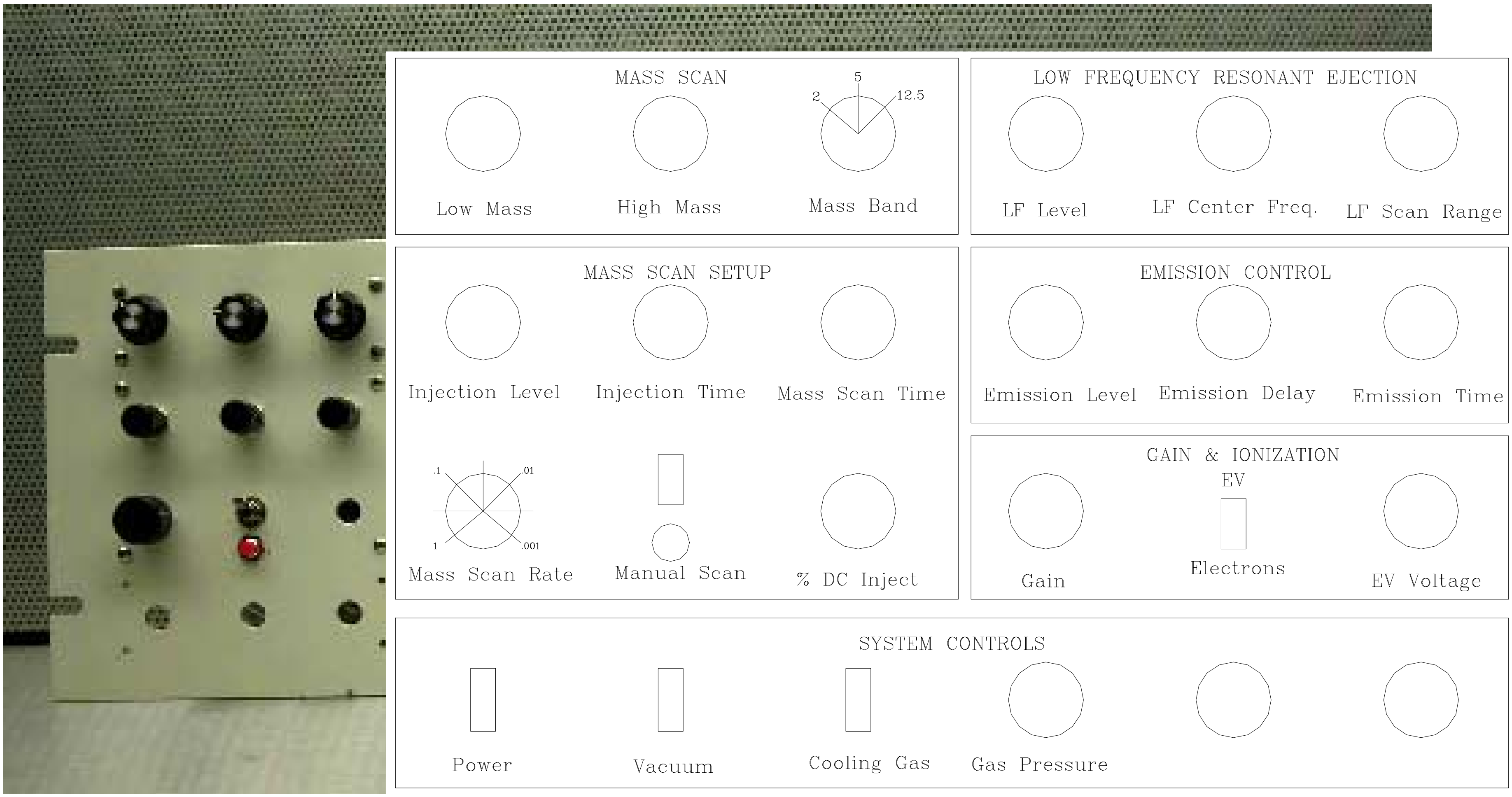
TIME-OF-FLIGHT SPECTRUM OF Ni MULTIPLE SHOTS FROM ION SOURCE



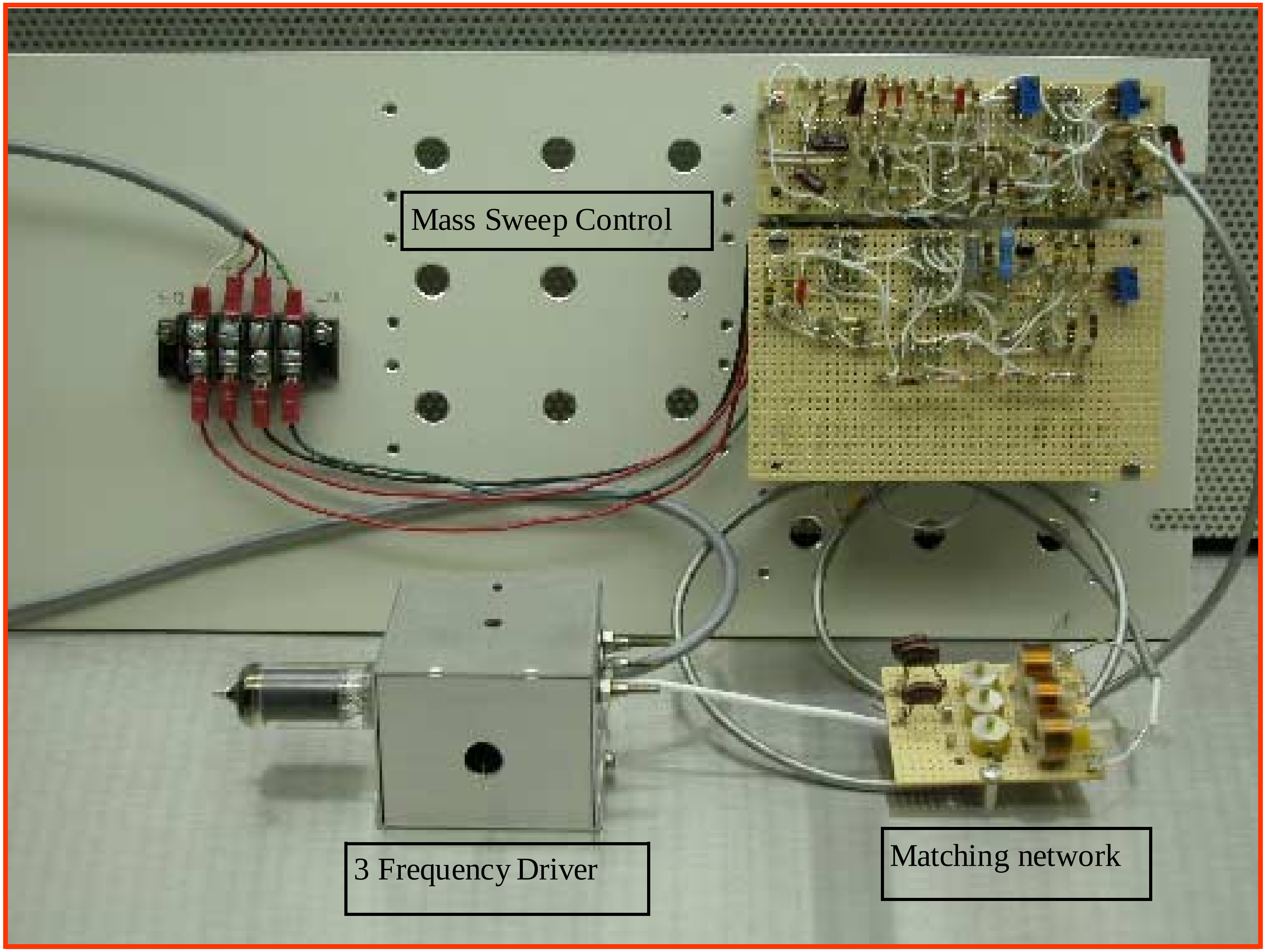
ION TRAP MASS SPECTROMETER



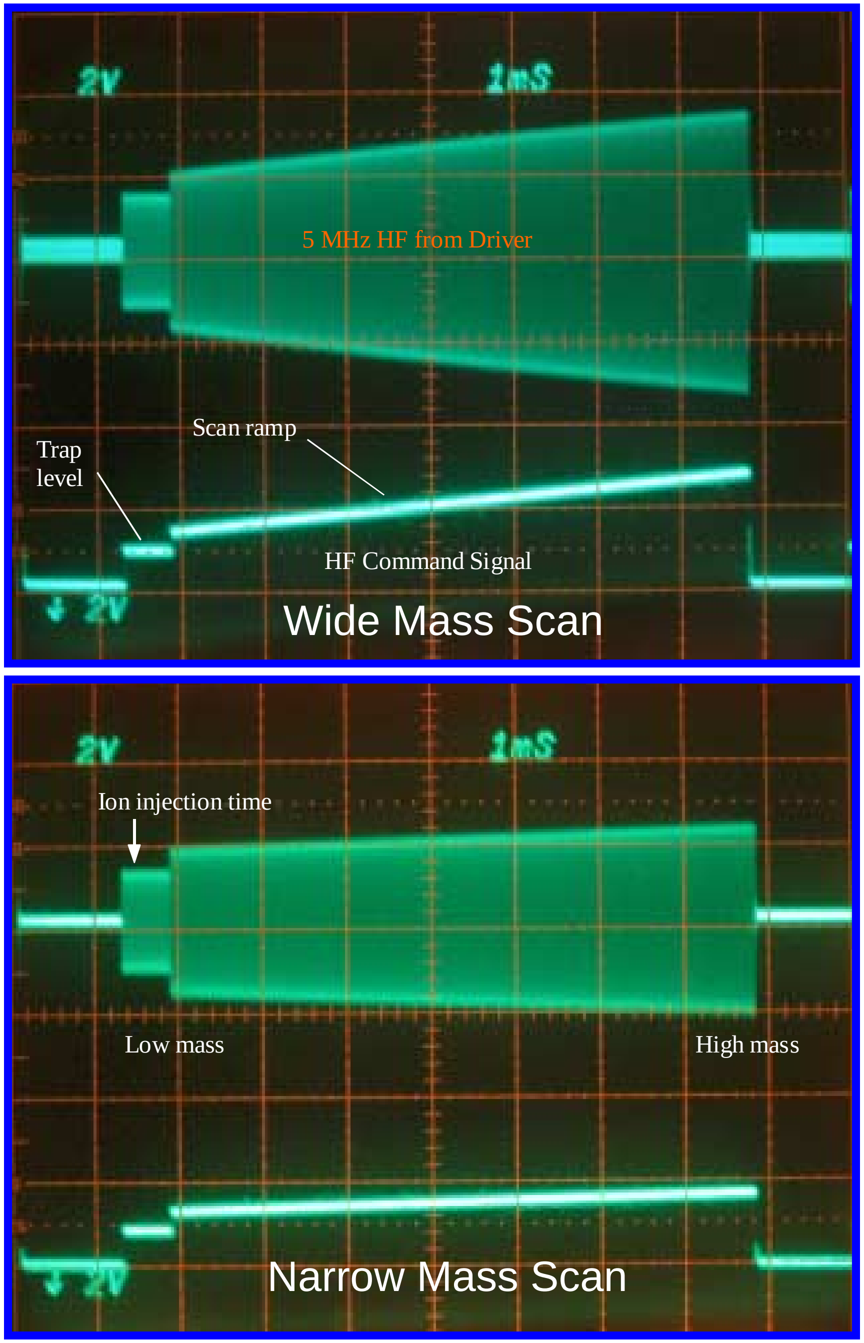
ION TRAP SPECTROMETER CONTROLS



BACK PANEL VIEW OF CONTROL

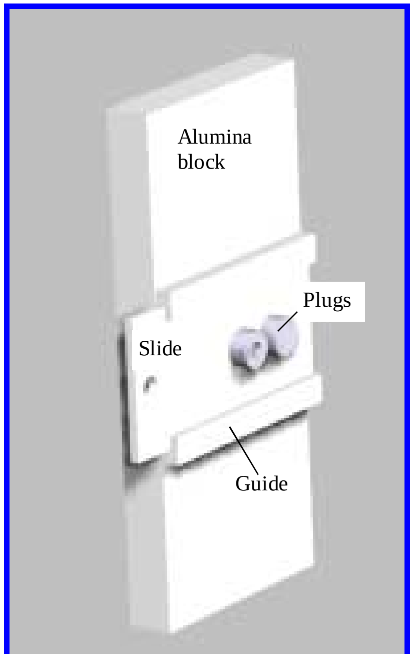


SCOPE PHOTOS OF ION TRAP MASS SPECTROMETER CONTROL WAVEFORMS



THE EASY WAY

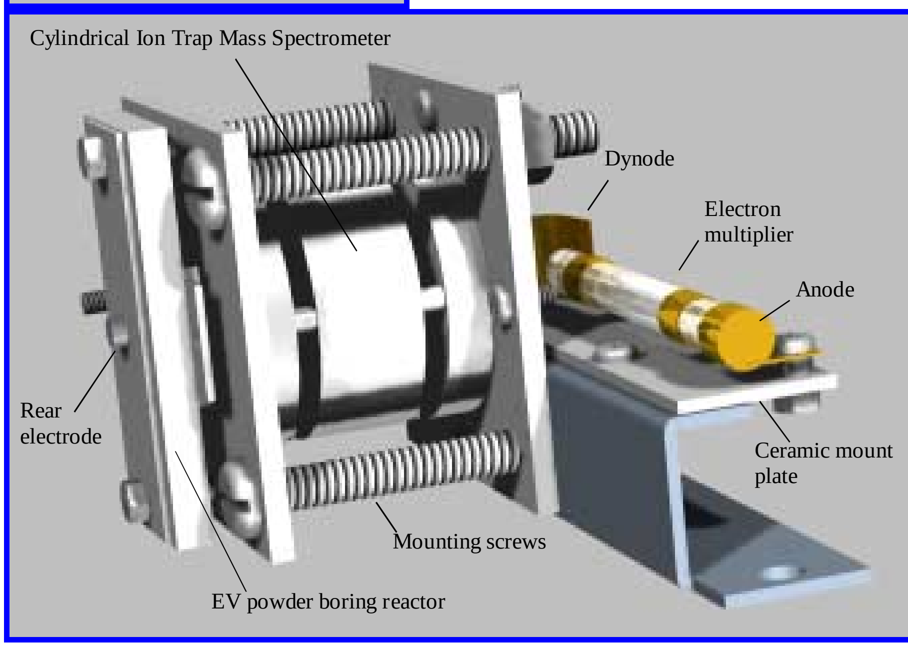
1. MANUAL CONTROL USING HAM TRANSMITTER HF SOURCE
2. CYLINDRICAL ION TRAP SPECTROMETER MADE OF CERAMIC WITH METAL COATING
3. ROUGH PUMP VACUUM ONLY
4. UNSHIELDED EV ION SOURCE
5. HOMEMADE CERAMIC ELECTRON MULT.
6. CASH OUTLAY ABOUT $1,800.00

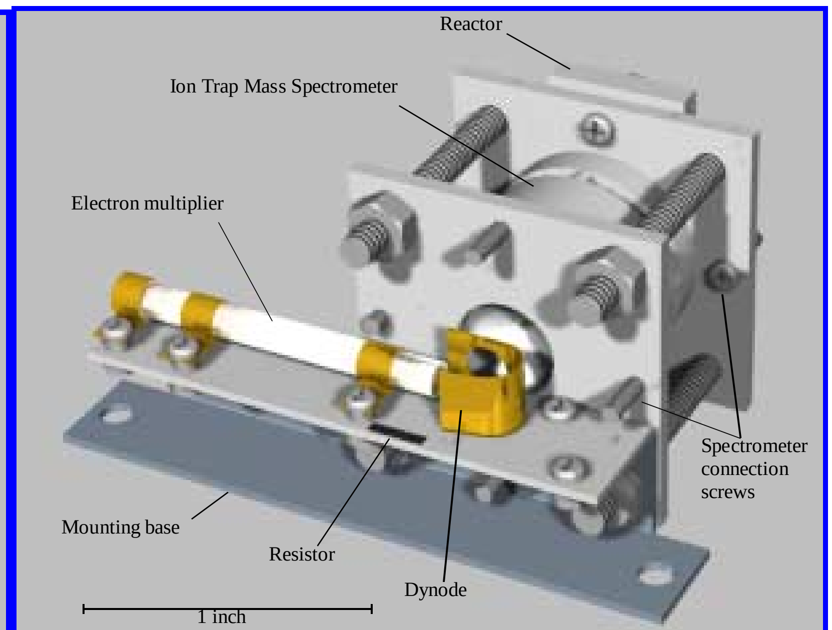


EV REACTOR WITH SLIDE VALVE

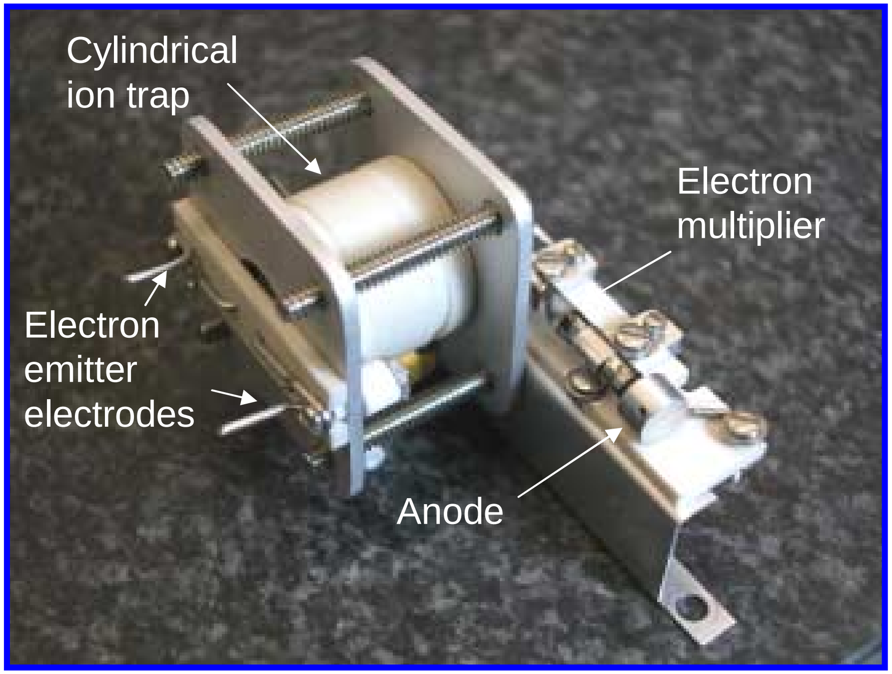
EV REACTOR AND CYLINDRICAL ION TRAP MASS SPECTROMETER

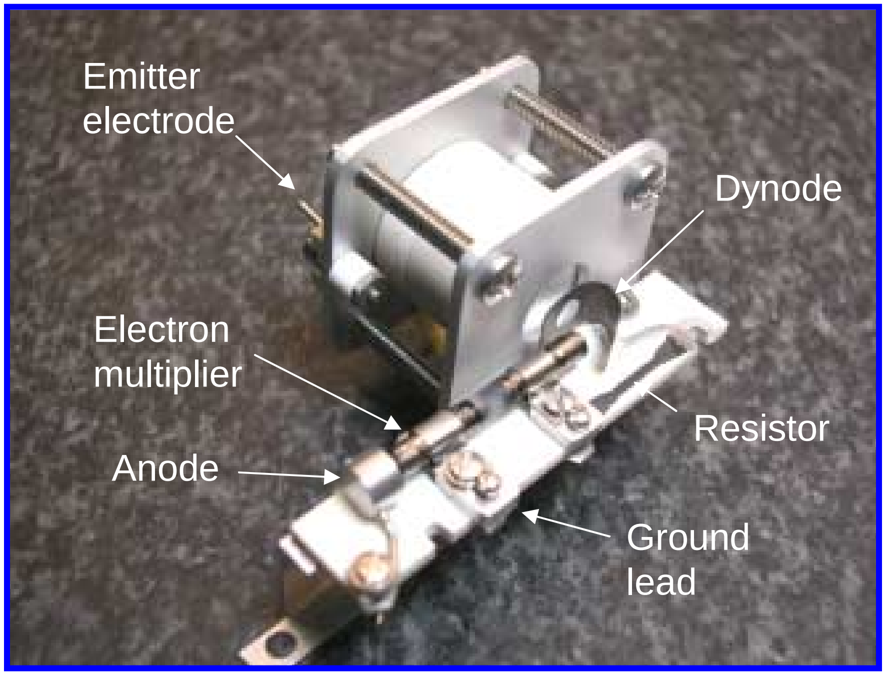
2 VIEWS OF CYLINDRICAL ION TRAP MASS SPECT.



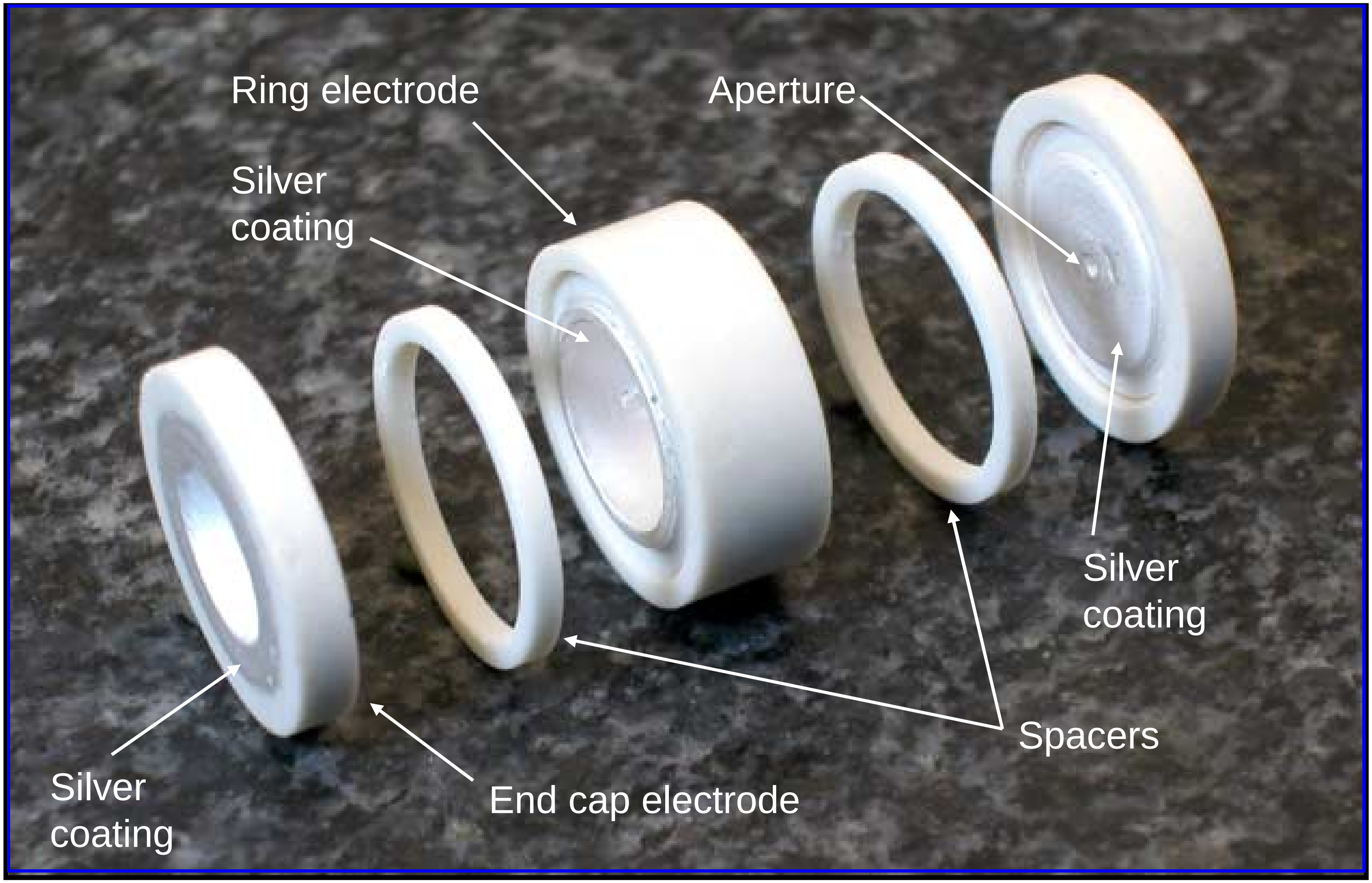


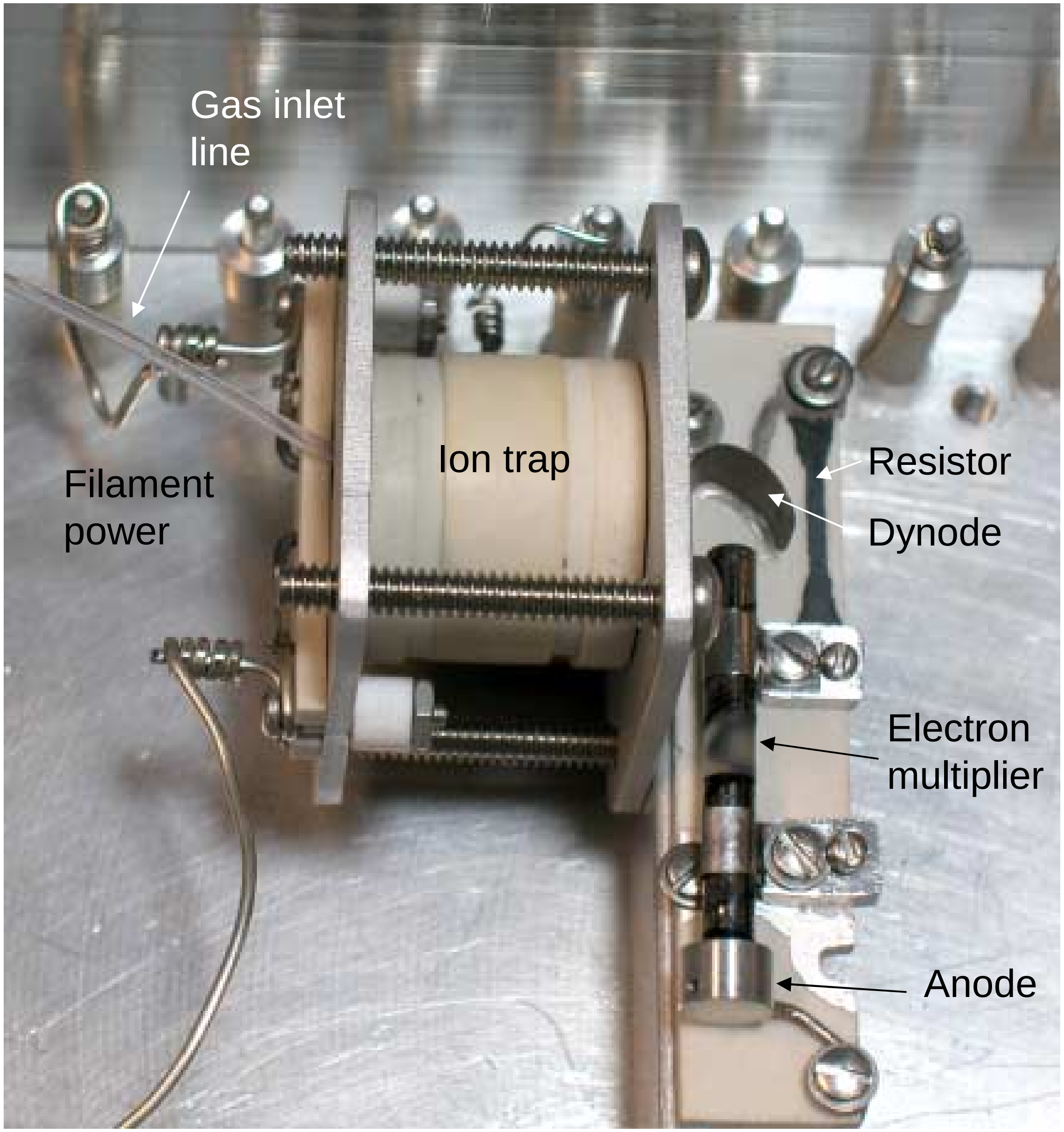
2 VIEWS OF CYLINDRICAL ION TRAP MASS SPECTROMETER WITH ELECTRON IONIZER FOR OPERATION WITH GAS





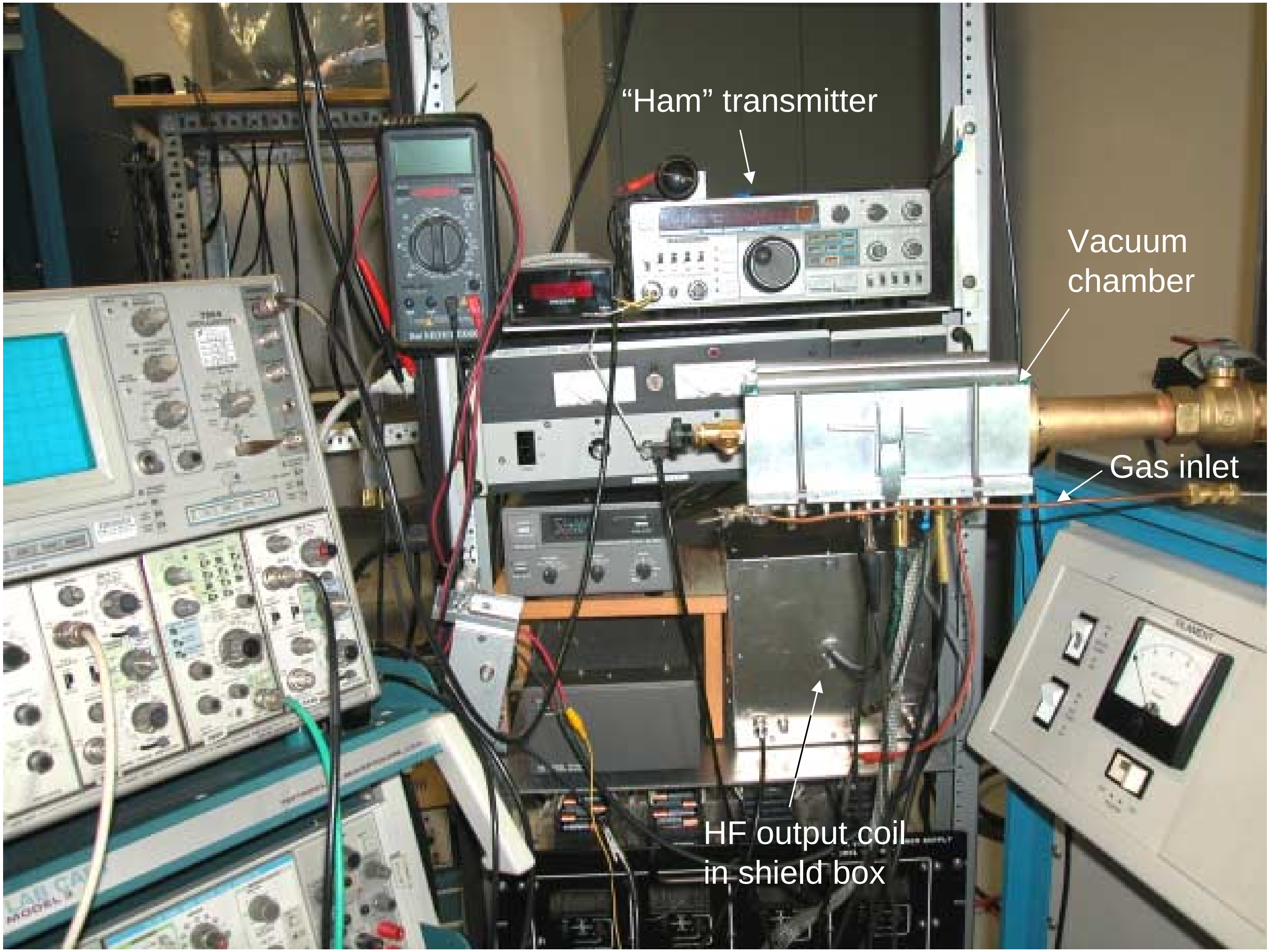
CYLINDRICAL, CERAMIC ION TRAP MASS SPECTROMETER



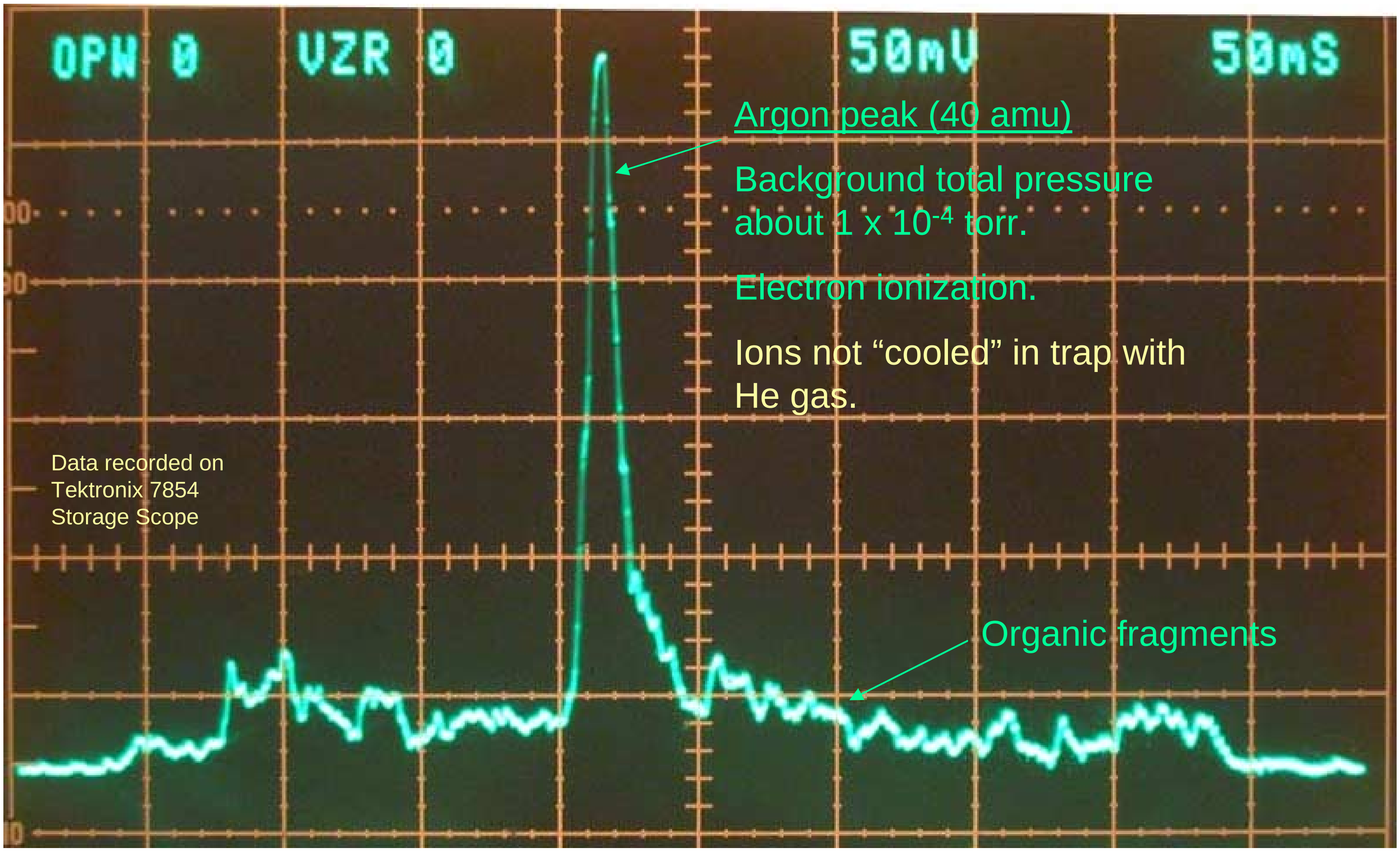


ION TRAP WITH ELECTRON IONIZATION SOURCE INSTALLED IN VACUUM SYSTEM

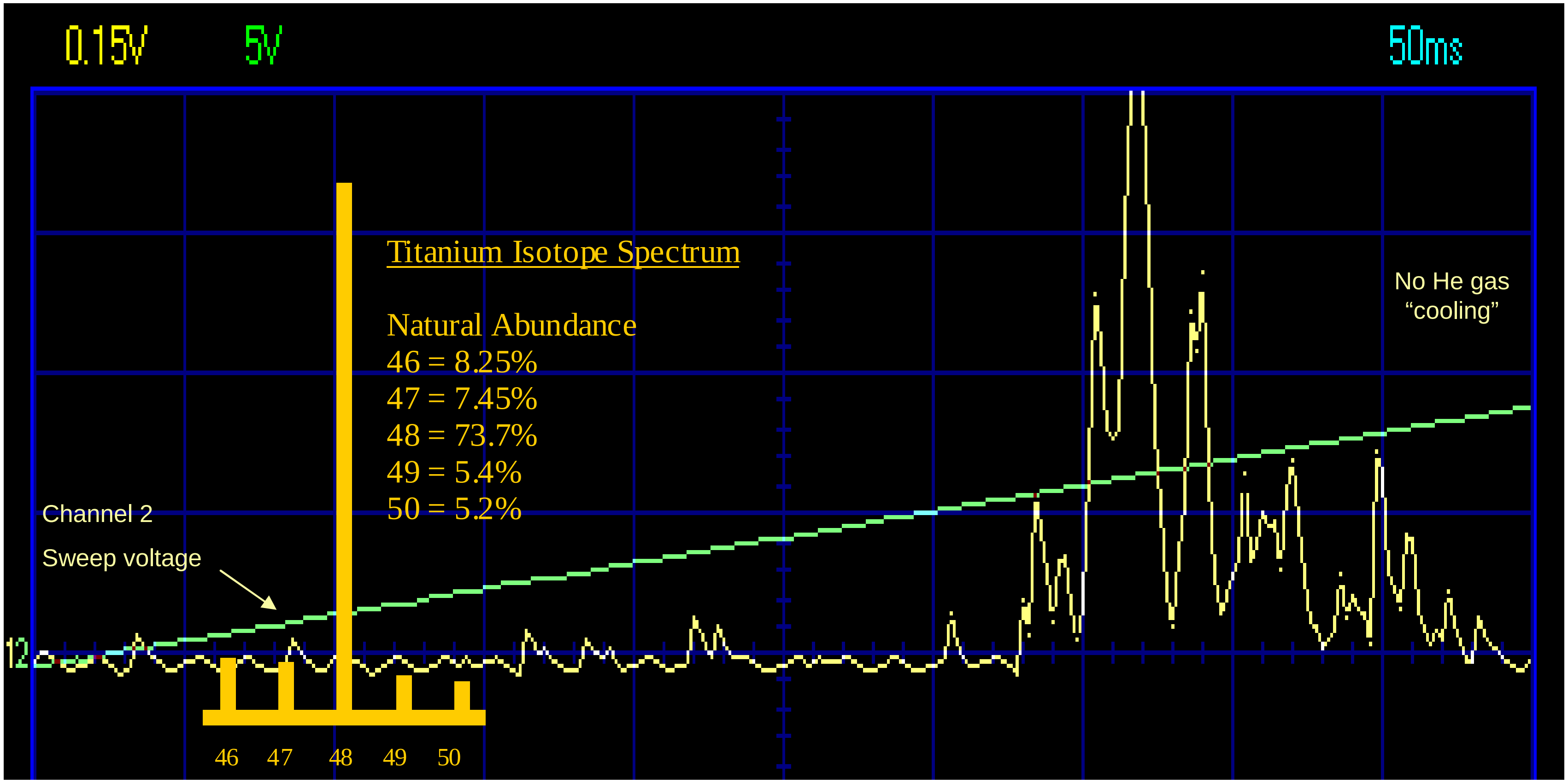
TEST SETUP USING “HAM” TRANSMITTER



SCOPE PHOTO OF ARGON SPECTRUM FROM CERAMIC, CYLINDRICAL ION TRAP



EV SPARK, TITANIUM ION SOURCE FED INTO CYLINDRICAL TRAP OPERATING IN ROUGH-PUMPED VACUUM

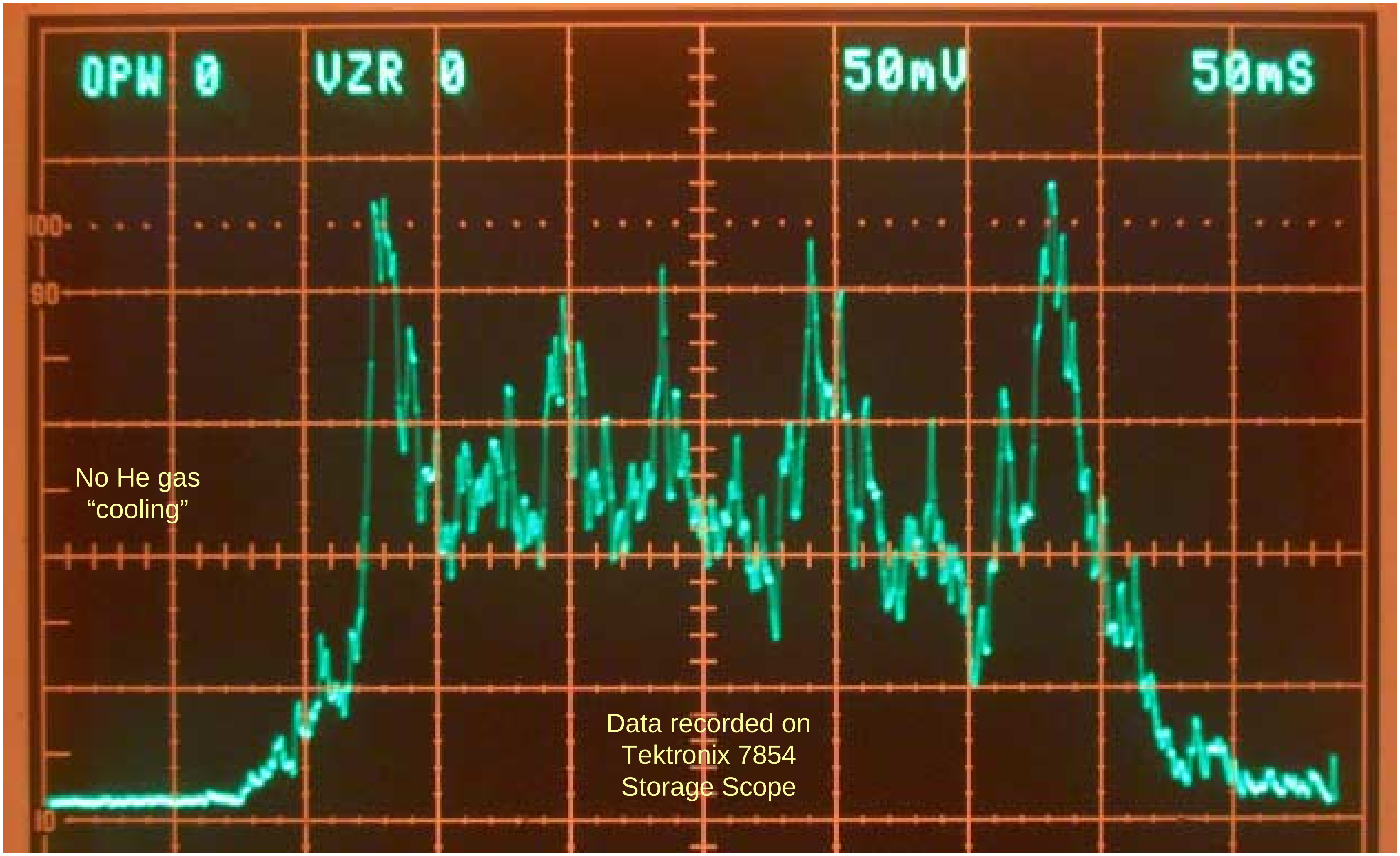


Data Recorded on Velleman PCS 500 Digital Oscilloscope ($450.00)

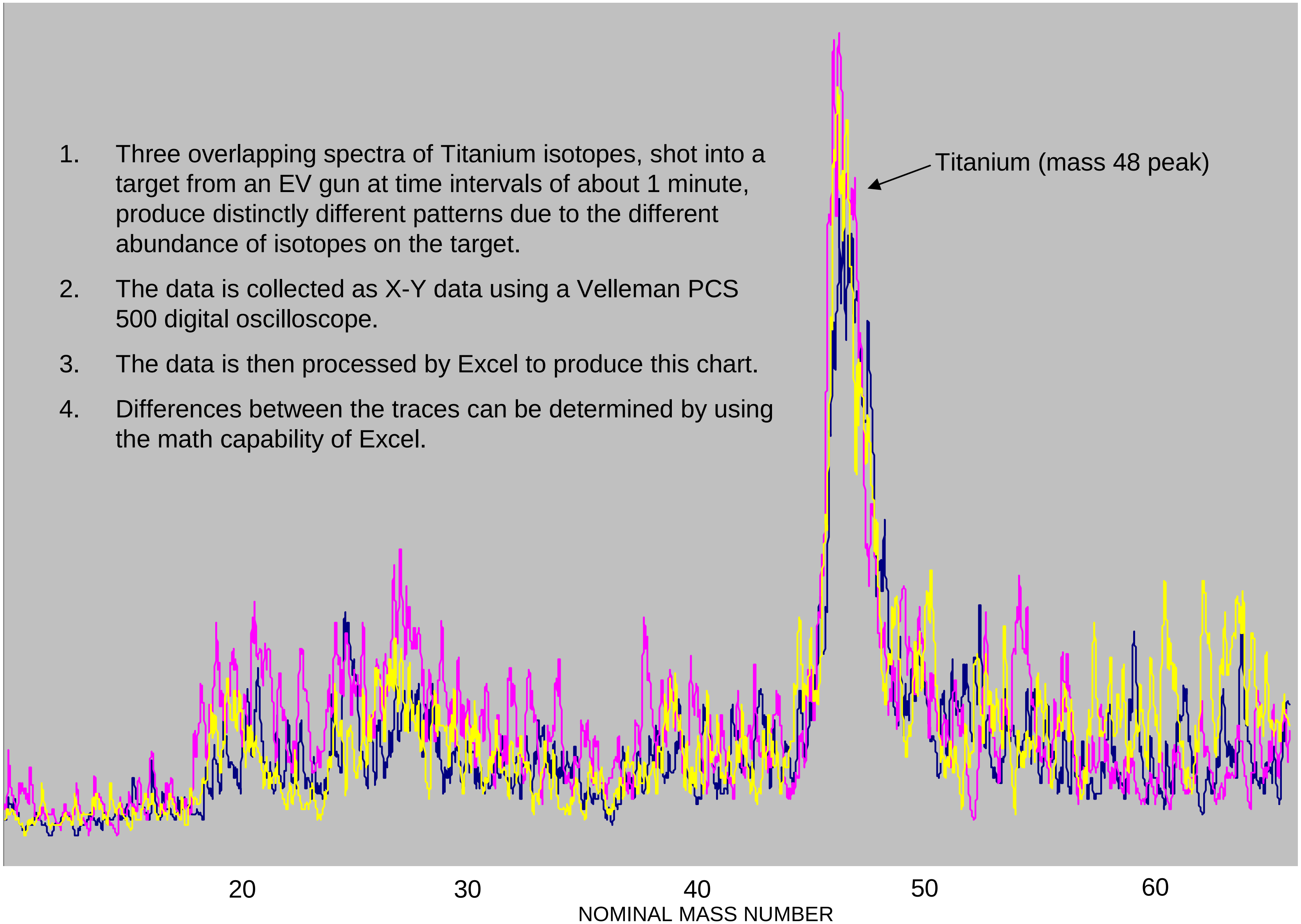
WHAT IS THIS MESS!

Titanium ions from EV source striking exit inside of trap yield a form of SIMS.

To remove effect: Make exit aperture of trap larger than entry aperture.



FINDING WHAT'S NEW



1. Three overlapping spectra of Titanium isotopes, shot into a target from an EV gun at time intervals of about 1 minute, produce distinctly different patterns due to the different abundance of isotopes on the target.
2. The data is collected as X-Y data using a Velleman PCS 500 digital oscilloscope.
3. The data is then processed by Excel to produce this chart.
4. Differences between the traces can be determined by using the math capability of Excel.

HIGH RESOLUTION ION TRAP SPECTROMETER

(Taken from literature)

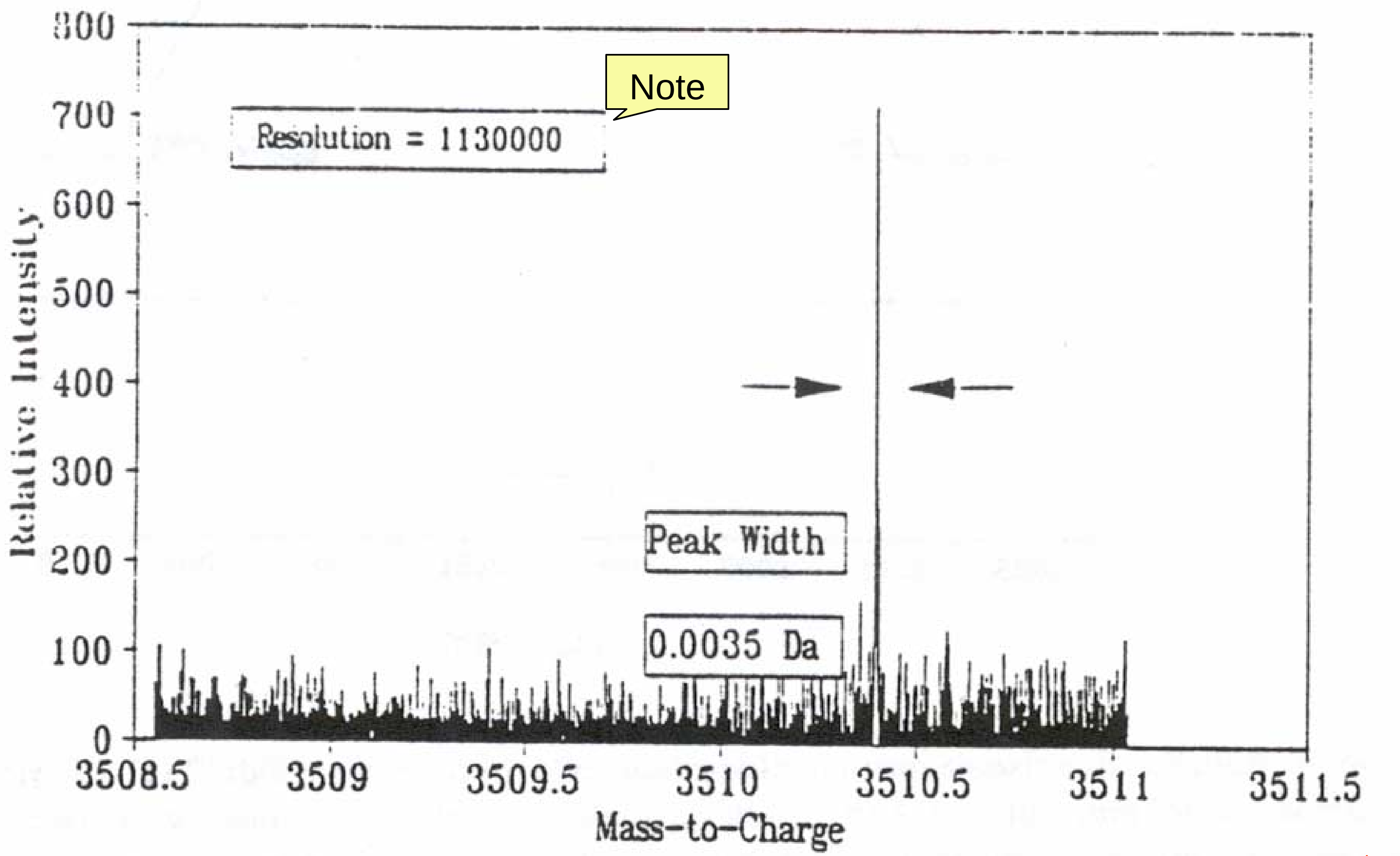
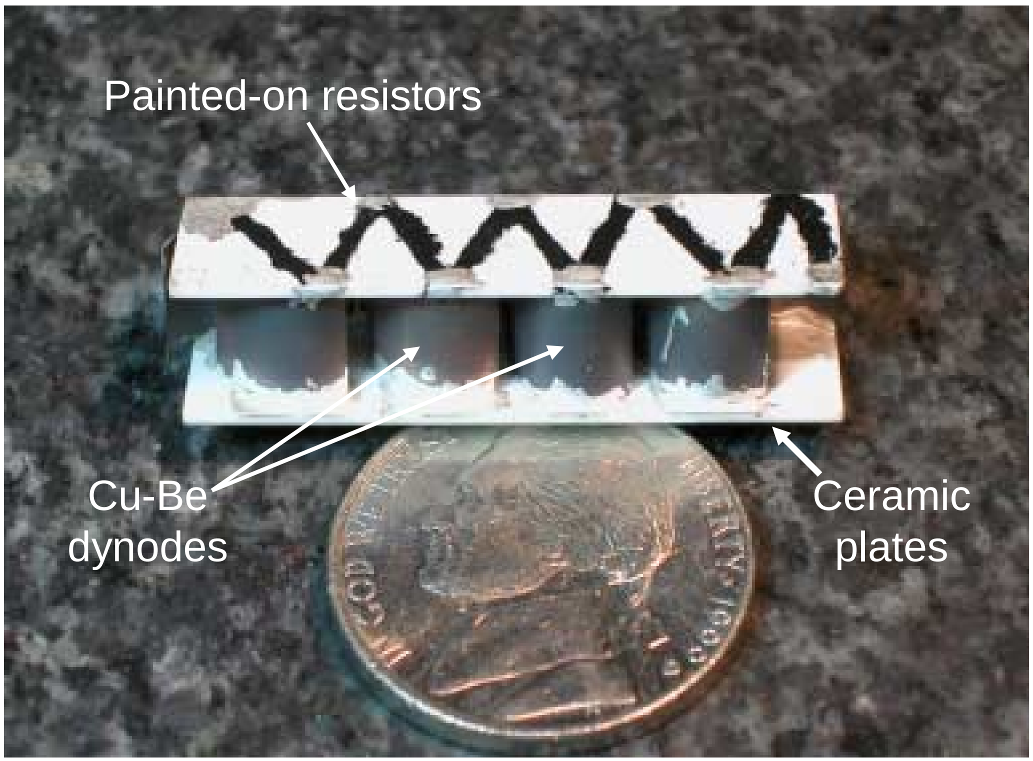
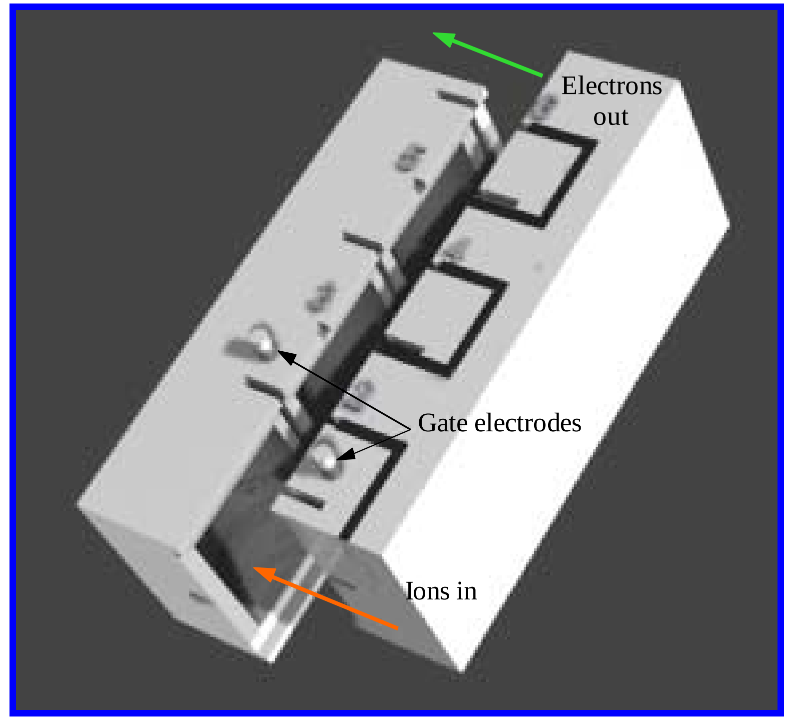


Fig. 12. The CsI cluster ion at m/z 3510 showing mass resolution in excess of 10^6 [18].

CERAMIC ELECTRON MULTIPLIERS

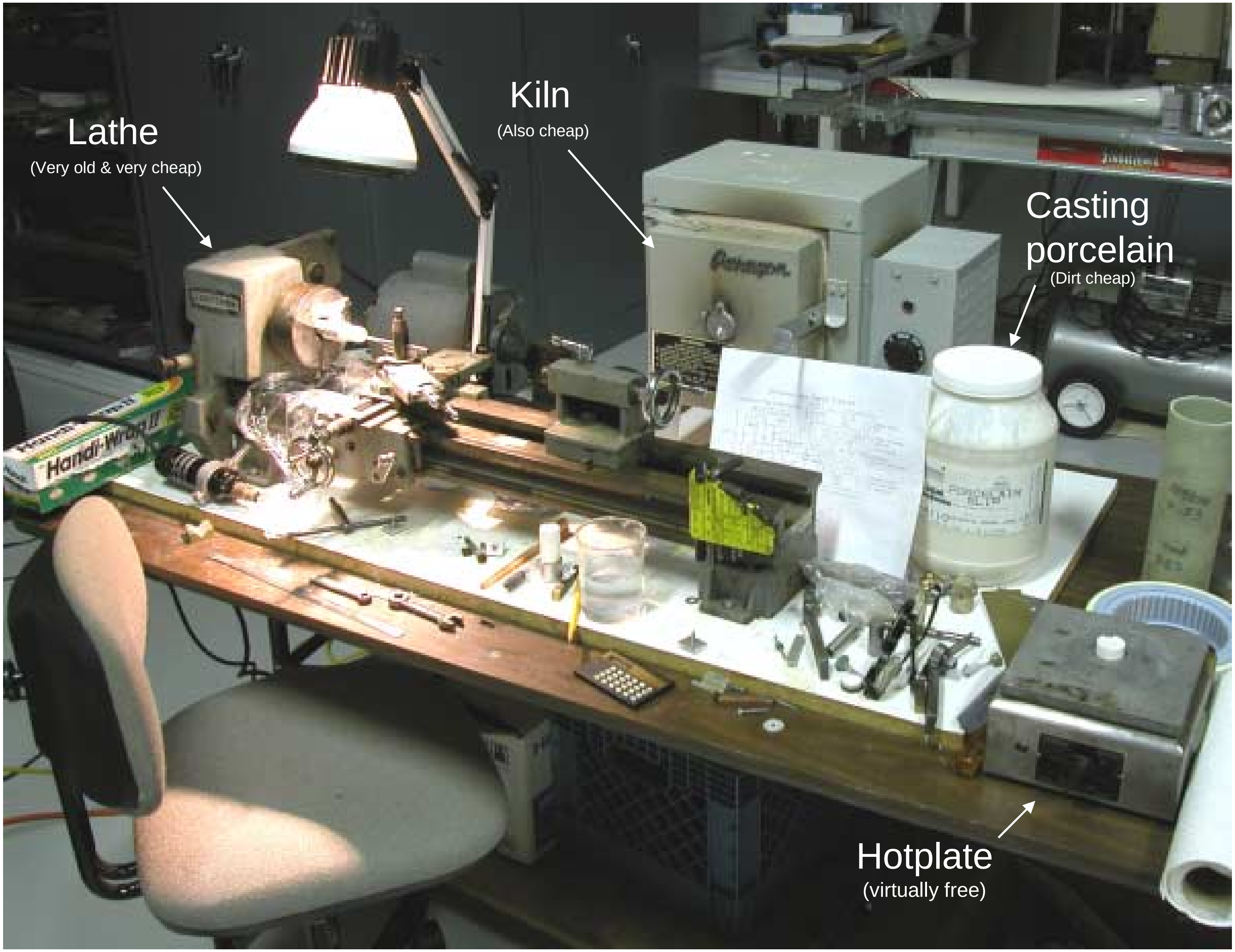
MULTISTAGE Cu-Be MULTIPLIER WITH RESISTORS





PROPOSED, CAST ELECTRON MULTIPLIER CONFIGURATION

LOW-TECH. CERAMIC SHOP



INEXPENSIVE VACUUM PUMP COMBINATION

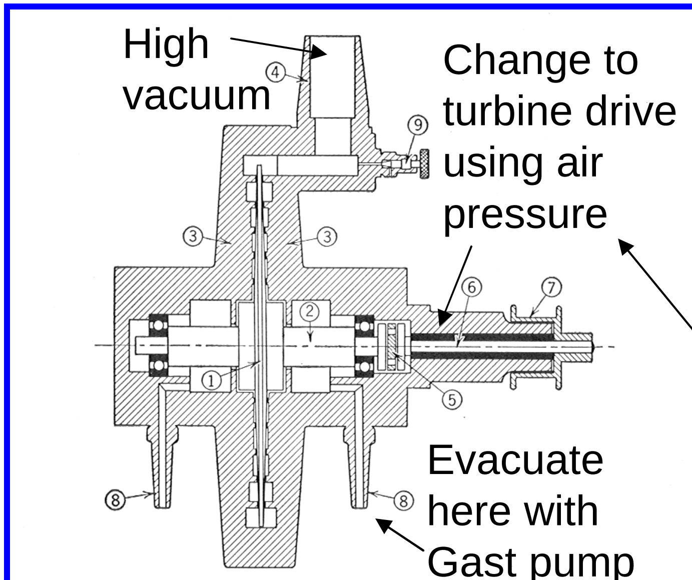
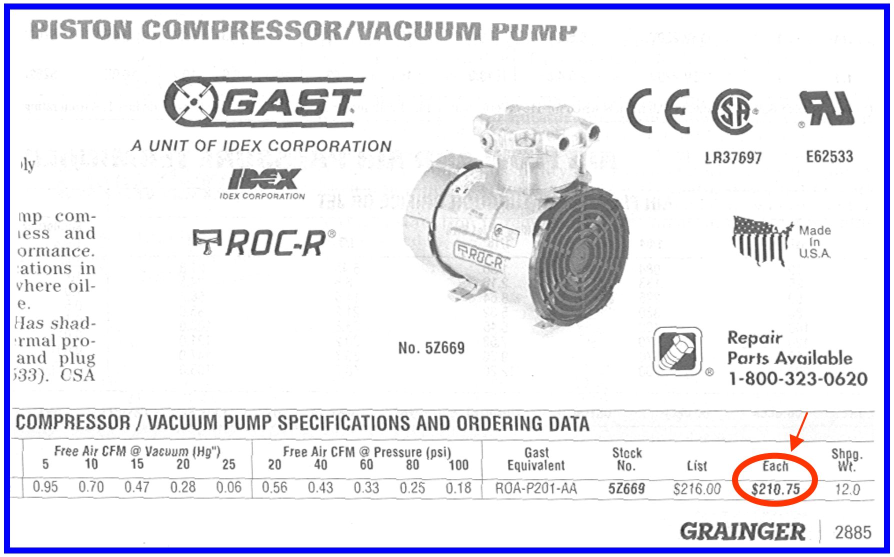


Fig. 23. Schematic diagram of a molecular pump of the ordinary Siegbahn type. Diameter of disk 22 cm.



PISTON COMPRESSOR/VACUUM PUMP

GAST

A UNIT OF IDEX CORPORATION

IDEX

ROC-R

No. 5Z669

LR37697 E62533

Made in U.S.A.

Repair Parts Available 1-800-323-0620

COMPRESSOR / VACUUM PUMP SPECIFICATIONS AND ORDERING DATA

Free Air CFM @ Vacuum (Hg")					Free Air CFM @ Pressure (psi)					Gast Equivalent	Stock No.	List	Each	Shpg. Wt.
5	10	15	20	25	20	40	60	80	100					
0.95	0.70	0.47	0.28	0.06	0.56	0.43	0.33	0.25	0.18	ROA-P201-AA	5Z669	$216.00	$210.75	12.0

GRAINGER 2885

Use air pressure output from Gast pump to drive 2” diameter turbine of Siegbahn vacuum pump to about 60,000 rpm.

MAKE AND USE

EV REACTOR-SPECTROMETERS

BY THE HUNDREDS

TO

"INUNDATE THE OPPOSITION WITH

A MASSIVE ARRAY OF FACTS ON

LOW-VOLTAGE TRANSMUTATION"