

Mike's Meeting

(28 APR 10)

Update on cathode chamber work

Cathode Transfer System (NML)
Cathode Preparation System (Lab 7)

Revised plan



- Wednesday (14APR10)
 - Complete the stand repairs
 - One more bracket to replace
 - Attach to the floor
 - Begin the vacuum work
 - Install the 500 l/s ion pump
 - Replace the broken valve
 - Install the RGA
 - Possibly replace the NuPro valve
- Thursday (15APR10)
 - Install and align the manipulators
 - Install the sources
 - Checkout the microbalance
- Friday (16APR10)
 - Begin pump out
 - Leak check
- Next week
 - Begin bakeout
- Additional Tasks:
 - 208/30amp service complete
 - PC and LabView installed
 - Internet available

Current Status of Prep System

(from Daniele Sertore)



- Completed tasks:
 - Installation complete
 - Source frame reassembled
 - Microbalance successfully tested
 - Successful movement of the cathode carrier and test of cathode grabbing and heater insertion and functioning
 - Repaired cross at intermediate section
 - Replaced CF40 T at the intermediate section
- Remaining tasks:
 - Bake out nearly ready
 - Preparation of ion pump for bake out
 - Wrapping the heater
 - Install Aluminum plate for bakeout ion pump
 - Test of all the heaters to check they are working properly.
 - Insulation with aluminum foil for bake out
 - Cabling for data acquisition
 - Some BNC cables are still missing
 - Borrow Pumping cart from AO
- Issues

Business End of the Prep System



- Power supplies and controllers installed in equipment rack
 - They still require connection and checkout
- Optical table needs definition along with support equipment

Transport Chamber (re-connected to system)



NML Plan



- **Wednesday:**
 - Position 500 l/s ion pump and lower Al support structure into place on the rails
 - Remove Transfer Chamber from its stand and mount on ion pump
 - Make chamber/ion pump connection
 - Obtain any measurements for Thursday's work
- **Thursday:**
 - No tunnel access
 - Need to make a stand for small ion pump
 - Procure a 2nd VAT valve
- **Friday:**
 - Reconnect Transport Chamber
 - Pump out and leak check

Cathode Transfer System

Completed Tasks:

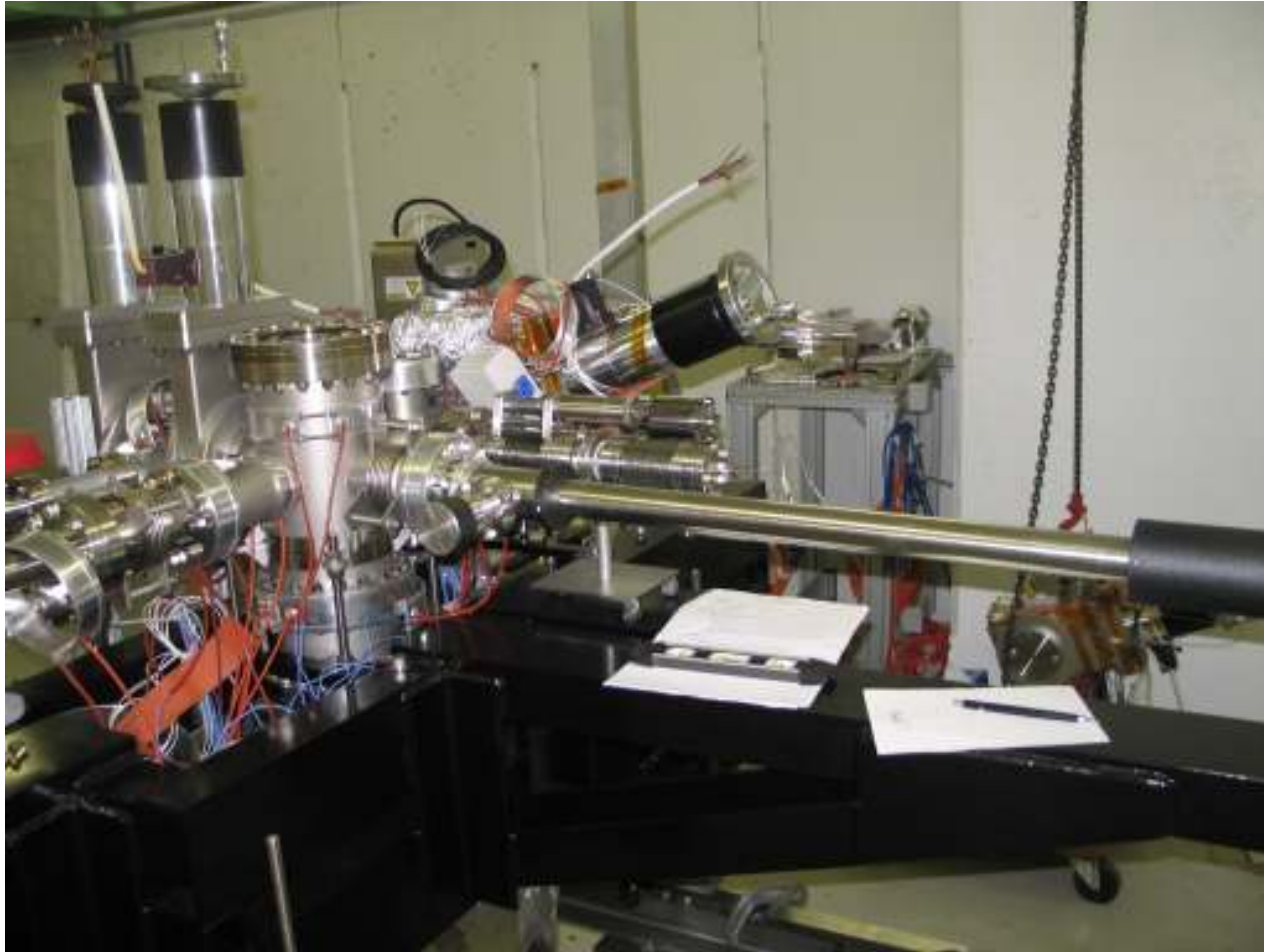
- System installed in the frame and ion pump connected
 - System leak checked
- RGA installed in the intermediate cross
- Installation of smaller ion pump at the intermediate cross
- Replaced VARIAN cold cathode gauges with TELEVAC. Still need to check operation at 200 °C.
- Installation of the two long manipulators
 - VG manipulator (perpendicular to the beam line) aligned.
 - Smooth movement of the carrier up to the intermediate cross.
 - Huntington (on the beam line)
 - Successful test of cathode grabbing at the rejuvenation station.
 - Cathode grabbing OK
 - Cathode insertion in the dummy gun once OK
- Dummy gun installed and a cathode was successfully inserted

Remaining Tasks:

- Strength of the pincer spring to be improved
- Alignment of the manipulator to be improved
- Frame modifications:
 - Supports for long manipulators
 - Support for ion pump (to be installed)
 - Removal of the transversal pipe at the end of the frame for installing transport system
- Welding of the new pipe replacing the one removed for the transport system
- Cabling for ion gauges and ion pump to be done
- Preparation for bake out to be done Interface under-lap

Issues:

- Modification for installing the sliding support for the transport system
- Stiffer support in place of the M12 rods Four support rods
- Frame alignment to be done after modification (alignment in the mm range)
- Alignment of the manipulator
- Pincer for cathode insertion



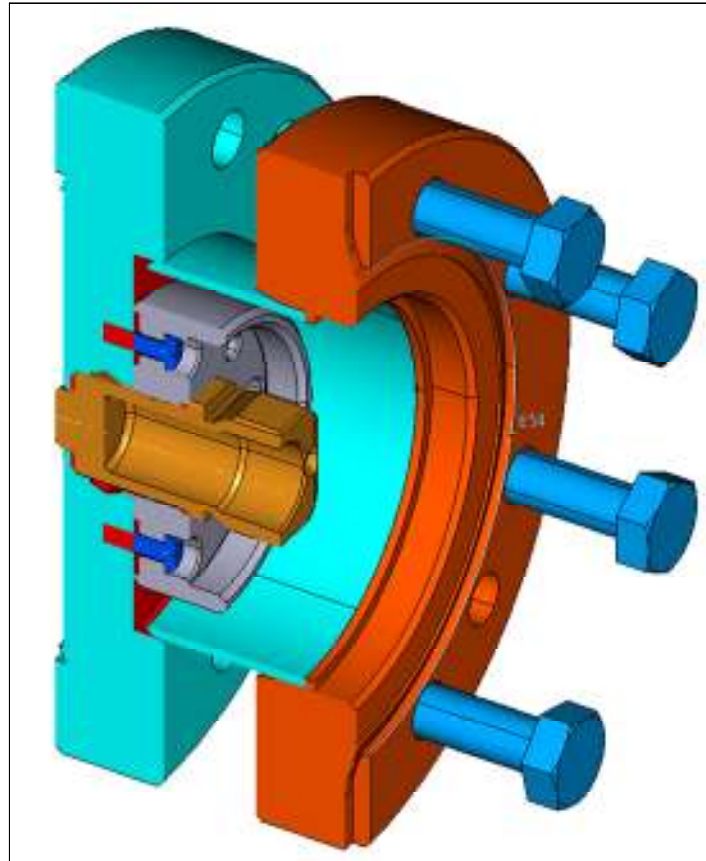


Pincer



- Issues:
 - Made of Be/Cu alloy
 - The W spring does not have enough stiffness to hold the cathode when being manipulated
- Resolution:
 - INFN looking to increase stiffness of the W spring

Dummy Cavity



CROSS SECTION – CATHODE TRANSFER TEST SPOOL

Four Support Rods



- Issues:
 - No lateral adjustment
 - Rigidity could be an issue
- Resolution:
 - Replace the rods
 - Add some lateral adjustment
 - Some effort began with this last week, but is on hold for the moment
 - Designer is currently incorporating the above work with a design that will:
 - Provide lateral movement
 - Examine the loss of range of vertical adjustment
 - Ensure that the ability to do maintenance is not compromised

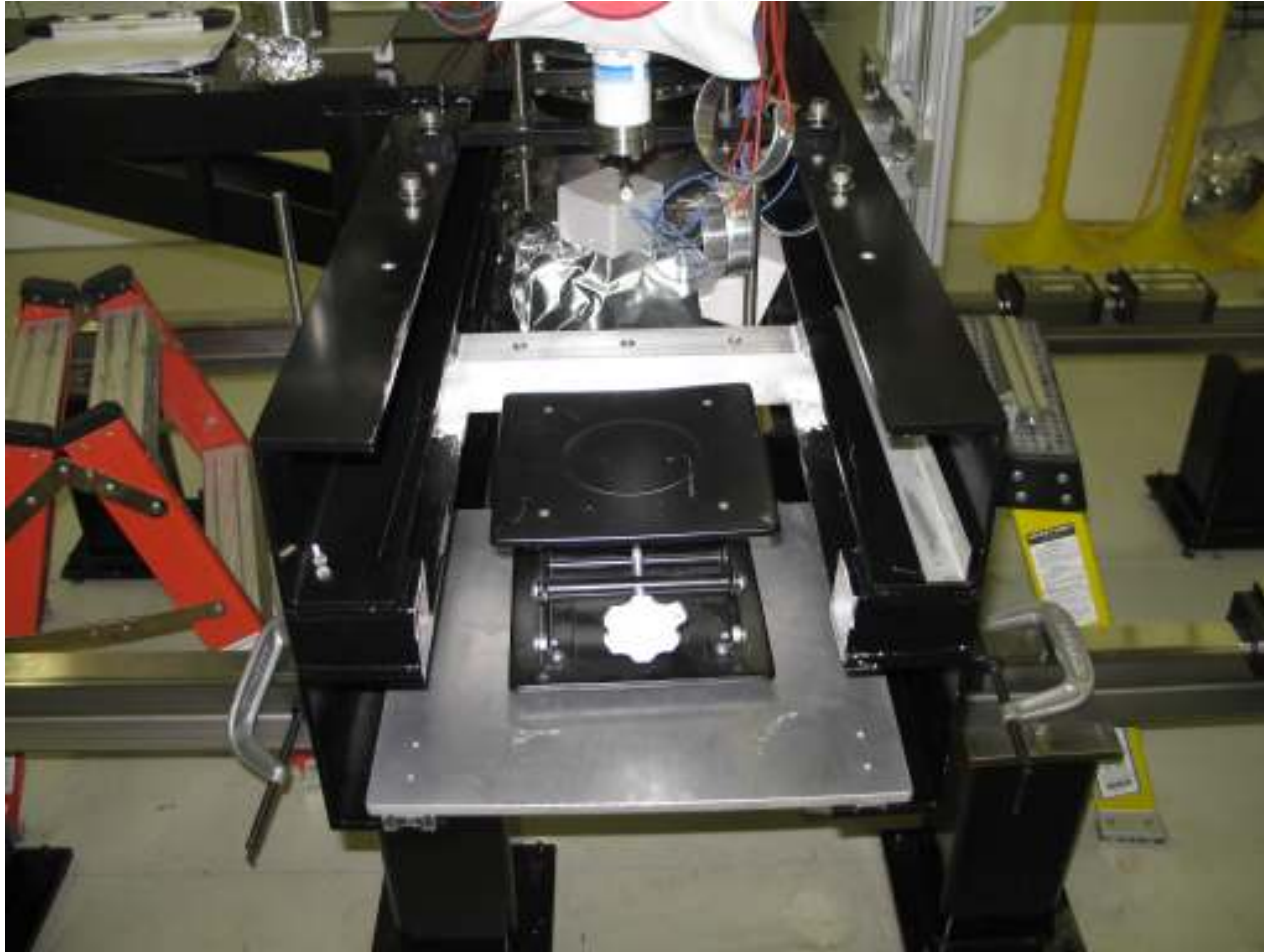
Alignment of the manipulator



- Issue:
 - Insertion manipulator is not vertically aligned with the beam axis
 - After picking up a cathode from the carrier, the upstream end must be raised to insert the cathode
- Resolution:
 - Not yet

Rework of Cathode Transport Station

(there was no provision built into our structure to accommodate the slide for the Transport System)



A-0 Progress

(from Daniele Sertore)

- Three plugs baked at 450 °C
- Te source calibrated
- Cs source calibrated
- One cathode prepared
- Still waiting UV power meter calibration for final QE assessment.
- Two cathodes still to be deposited



Transport Chamber @ NML



The Original Plan

- Cathode Prep System (Lab 7) (Brad, Ryan, Elias)
 - **Monday (12APR10)**
 - 1) After obtaining materials from NML, repair the support structure
 - 2) Move the entire assembly to its final location (M. Albertus available to assist)
 - **Tuesday (13APR10)**
 - 1) Begin vacuum repairs (replacement valve is located in room adjacent to Prep Chamber room)
 - 2) Connect vacuum system (Lucy Nobrega is locating vacuum pumping equipment)
 - **Wednesday (14APR10)**
 - 1) Leak check system and begin pump down
 - 2) Prepare system for bakeout
- Cathode Transfer System (NML) (Craig Rogers, Chris Exline, Ron Kellett, Dave Franks)
 - **Monday (12APR10)**
 - 1) Vent to Nitrogen, and remove the Transport System from the assembly
 - 2) Prepare the 500 l/s ion pump for installation (remove and replace flanges and position it under the installed Transfer System support structure)
 - 3) Reposition the Transfer System and prepare to transfer it to its installed position
 - 4) Seal, leak-check and begin pump down of system.
 - **Tuesday (13APR10)**
 - 1) Vent and begin installation of manipulators and Transport System (this may require support structure modification to accept the weight of the Transport System)
 - **Wednesday (14APR10)**
 - 1) Leak check system and begin pump down
 - 2) Prepare system for bakeout

Concerns

- Goal:
- Assemble Transfer System and Transport System
- Assemble and connect dummy gun
- Pump out and leak check
- Bakeout:
- To be done in June
- Better to conduct training and practice before baking

Cathode Transfer System

