



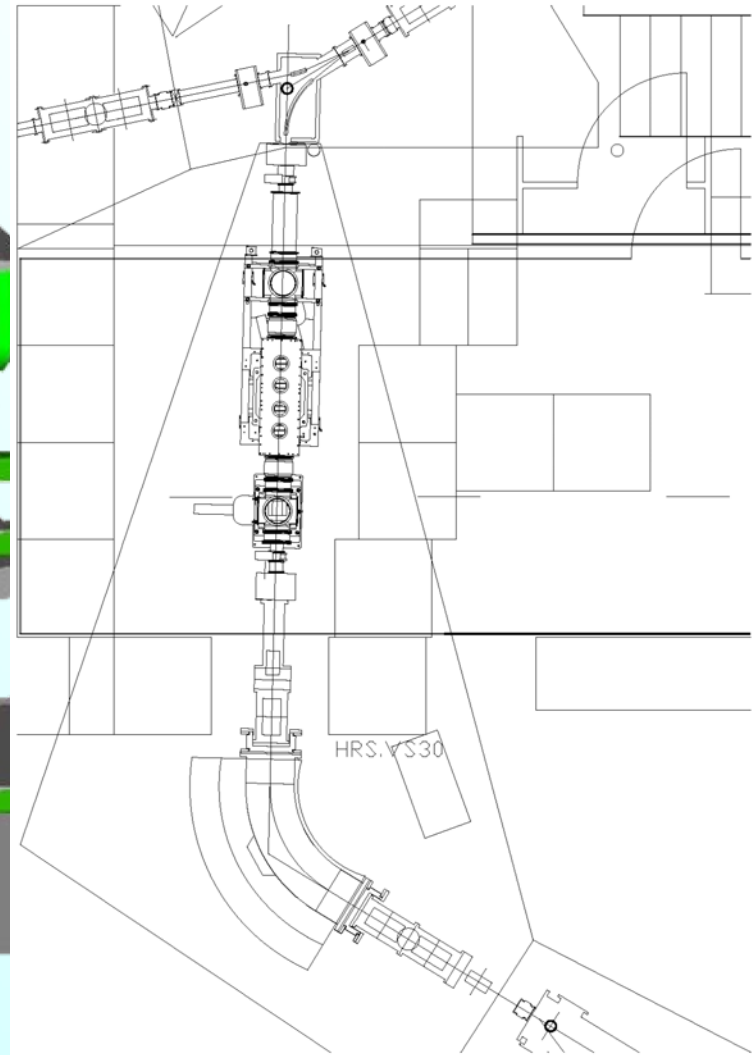
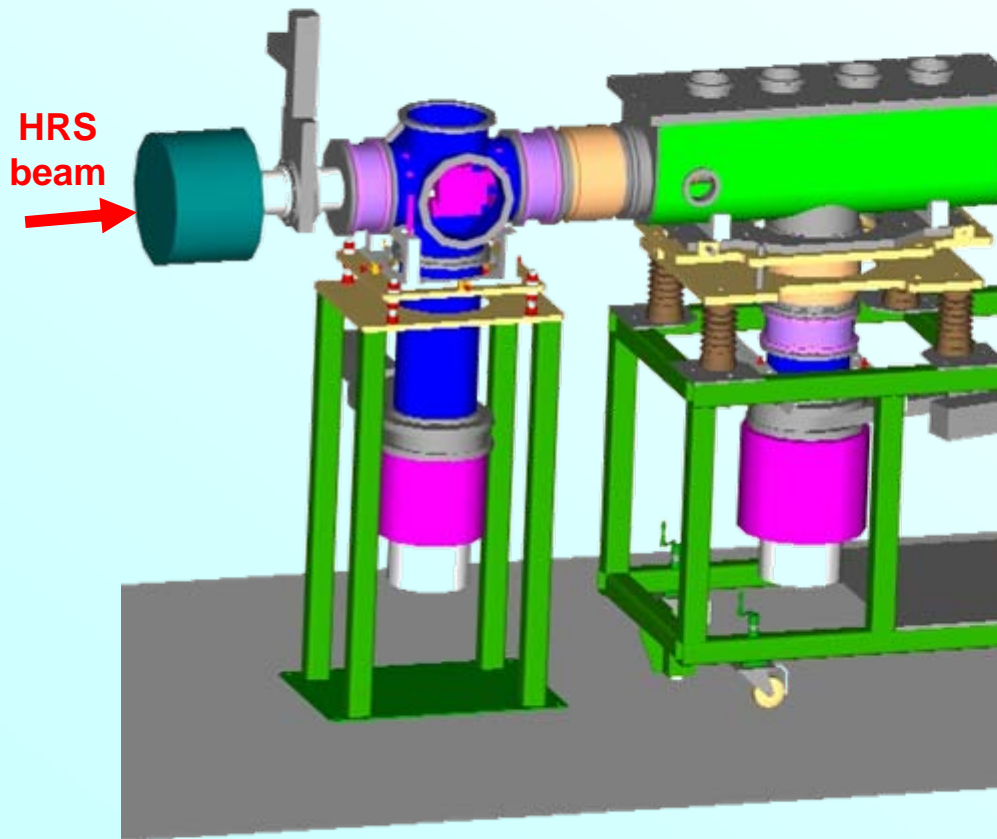
Status of the test bench for the ISCOOL project

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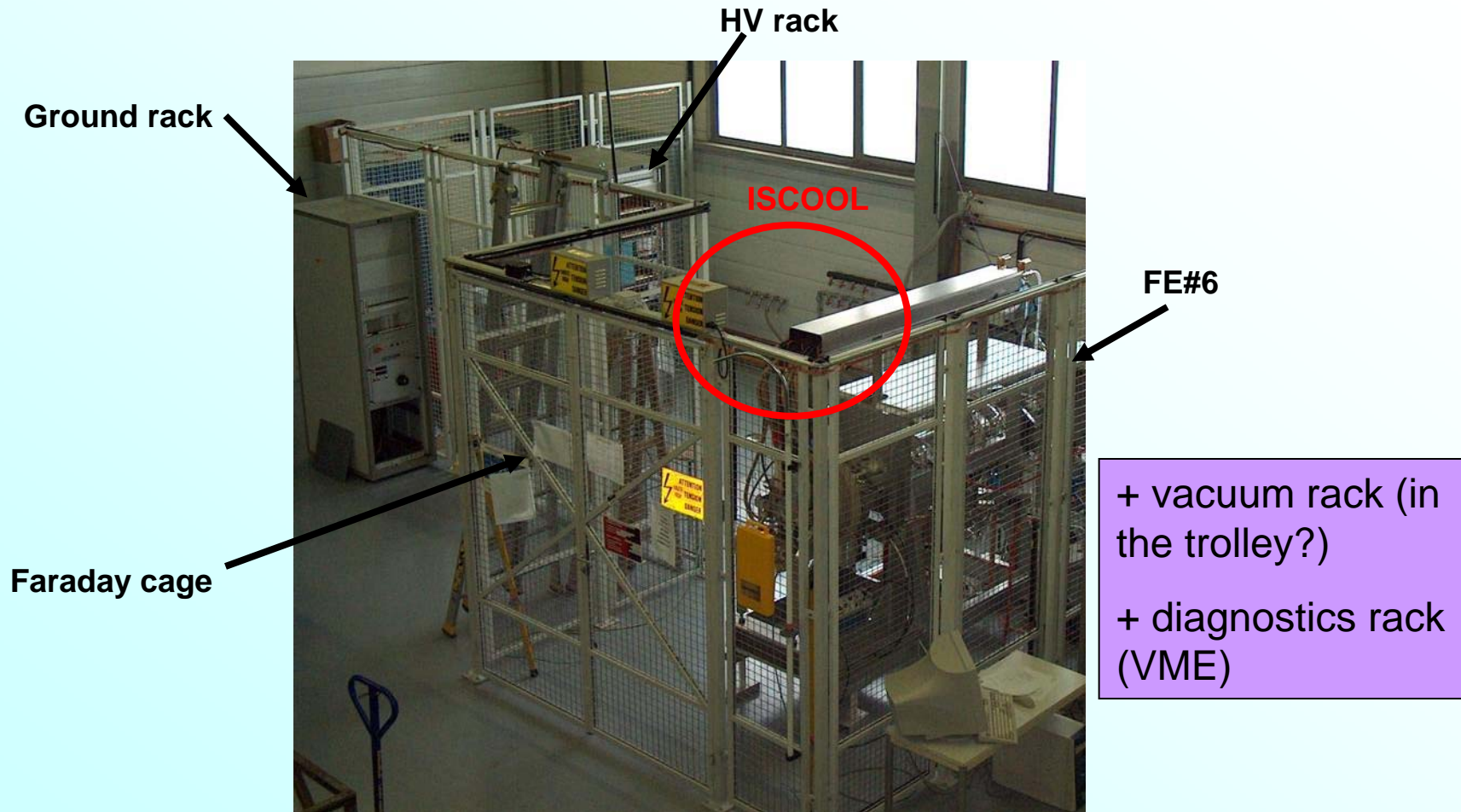
21 September 2005

<http://www.cern.ch/ab-div-op-iso-rfqcb/>

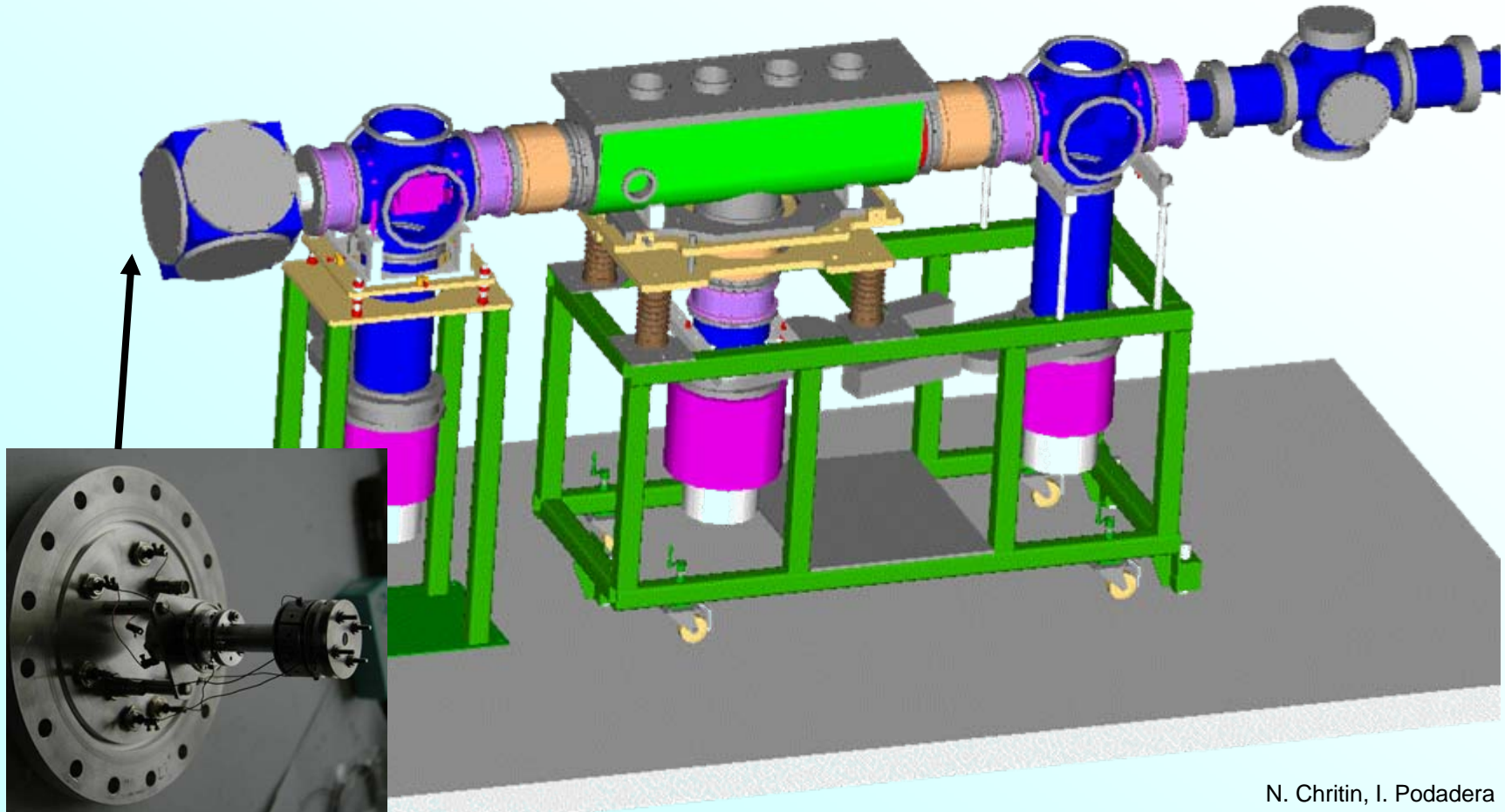
ISCOOL beam line



Test bench layout



Test bench layout



Ion source LPC

N. Chritin, I. Podadera

I. Podadera Aliseda, 21-9-2005

Mechanical assembly

Done:

- First cavity assembly and alignment completed.
- Pieces prepared for the cleaning.

In progress:

- Mechanical polishment of RF rods.
- Vacuum cleaning of all the pieces.
- Welding of 4 DN100 flanges (RF feedthroughs, multipin feedthroughs, DC feedthroughs and gas+pressure gauge).
- Welding of 2 DN200 flanges: venting+pressure gauges.
- Construction of injection cross piece support (Orsay): 15 October.
- Construction extension vacuum chambers: Mainz, 15-31 October.

Missing:

- Design of quadrupole triplets: conception could be finished end of October and manufacturing designs end of November. If more urgent work is needed another designer should be rented.
- Manufacturing drawings of transition pieces for final line.
- Transition pieces between ion source-insulator, insulator-BO, BO-bellow and bellow-emittance meter.

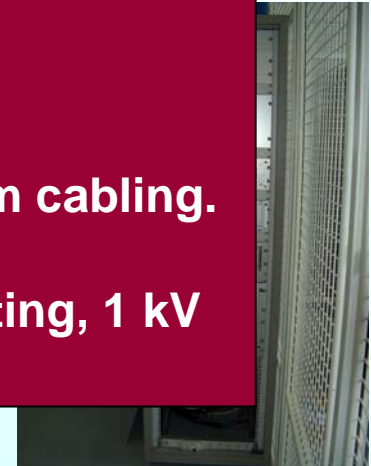
Electronics design

1. DC power supplies. Installed and partially tested.
2. Isolation transformer. Installed.
3. High voltage PS. Installed.
4. RF supply. Prototype tested, in construction. Installation: November 2005.
5. Fast switches. 1 BEHLKE fast switch to install for testing.



Missing:

1. 10 kV DC PS for new quadrupole triplet.
2. Cabling to ISCOOL (2-3 w in advance) and in-vacuum cabling.
3. First tests HV PS.
4. Power supplies for the ion source: 1-2 A for the heating, 1 kV for the voltage.



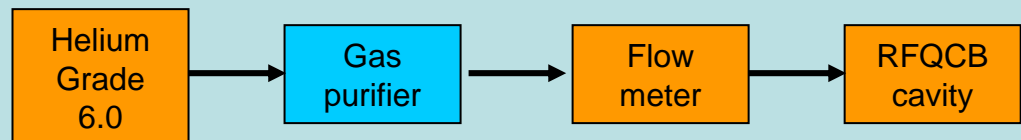
Vacuum system

Status:

1. 3 turbos arrived. To be installed.
2. Forepumps: already in building 275. Triphase cabling for 33 m³/h pump.
3. Valves to be installed (waiting mechanical supports).
4. Gas line: valve and control unit received. Line designed. Mechanical fittings in progress.
5. Full range gauges received: 2 in ground (1 controller) and 1 in HV (PLC control).
6. Mechanical flanges for gauges and venting in progress.
7. Test and first-run of all the system: waiting mechanical supports or first tests?

turbopump

Gas purification layout



Diagnositics

Injection:

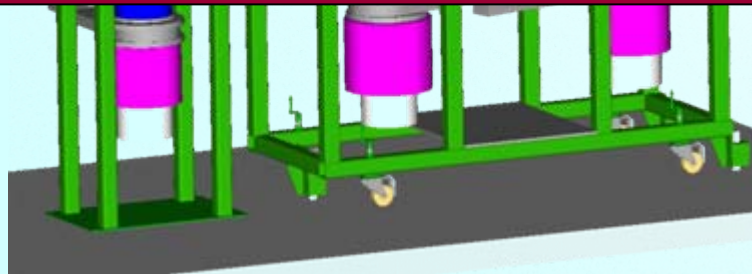
✓ Faraday cup

Extraction:

✓ Faraday cup

Status:

1. FC+scanner box: flange an vacuum chamber prepared. Missing support for 45° chamber and cables for the picometers. VME rack?
2. MCP: borrow or copy design?
3. FC extraction: special flange?
4. Emittance measurements of the LPC ion source required? With “elephantine”?
5. Emittance meter for low intensity beams after the cooler?



Test bench

Control design

Status:

1. Complete PLC system (CPU, Ethernet coupling, fibre optic, I/O...) assembled and installed.
2. Labview application to control DC power supplies: designed and first tested by T. Tallinen.
3. Cabling of the PS: by OP group (before end of September).
4. Labview software ready for upgrade for installation of gas flow control, RF supply and pressure HV gauge. Tests required after final assembly.
5. Missing HV interlock for vacuum.
6. Decision about the S7-300 FM module for the HTL, and conversion HTL to TTL, to manage all the timing signals.



Manchester manpower

- **PhD student working on the cooler from this month. Possible application for CERN doctoral position: full-time on the cooler.**
- **Postdoc support: weeks of intensive testing.**

Task during October

275 preparation

- Vacuum and diagnostics ground rack installation.
- Installation fast-switch and function generator (TTL).
- Cabling.
- Full tests of test bench control system.
- Support for diagnostic box at 45°.
- Ion source assembly with diagnostic box and HV insulator.
- Preparation vacuum system?

ISCOOL assembly

- Cleaning pieces (next week).
- Final clean assembly: ISOLDE workshop.
- Transport 275.
- Final assembly.
- Connection of electronics to ISCOOL (end October?).

First results before Christmas possible but depending on manpower available...