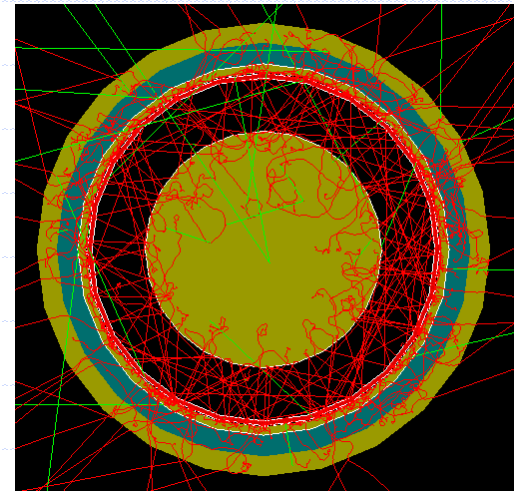


FCalPulse Local Mtg

J.Rutherford
25 February 2021



FCalPulse Collaboration - Local

◆ University of Arizona group

- Prof John Rutherford
- Prof Erich Varnes
- Research engineer Alexandre (Sasha) Savin
- Engineer Rob Walker
- Engineer Dan Tompkins
- Grad student Billie Lubis
- Ugrad Nick Foo
- Ugrad Graham Woolley
- Ugrad Justin Hink
- Ugrad Evan LaForge

FCalPulse International Collaborators

- ◆ TRIUMF – Canada: Leonid Kurchaninov
- ◆ IHEP – Protvino: Sergey Denisov
- ◆ ITEP – Moscow: Petr Gorbounov and Pavel Shatalov
- ◆ JINR – Dubna: Alexander (Sasha) Cheplakov and Victor Kukhtin
- ◆ CERN – Switzerland: Martin Aleksa

Outline

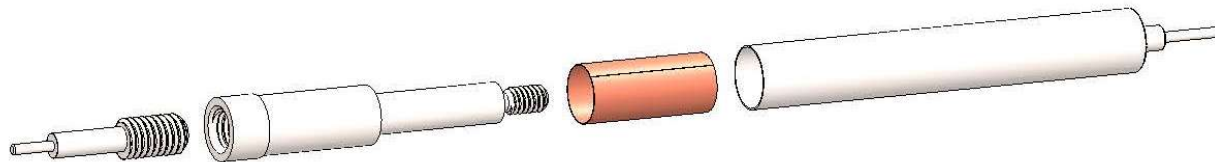
- ◆ Status of radioactive source
- ◆ Status of preamps
- ◆ Request for beam time
- ◆ More on the H4 beam in the North Area
- ◆ Keeping the noise at bay
- ◆ Simulated test beam data and analysis of that data

Hot beta source - Status

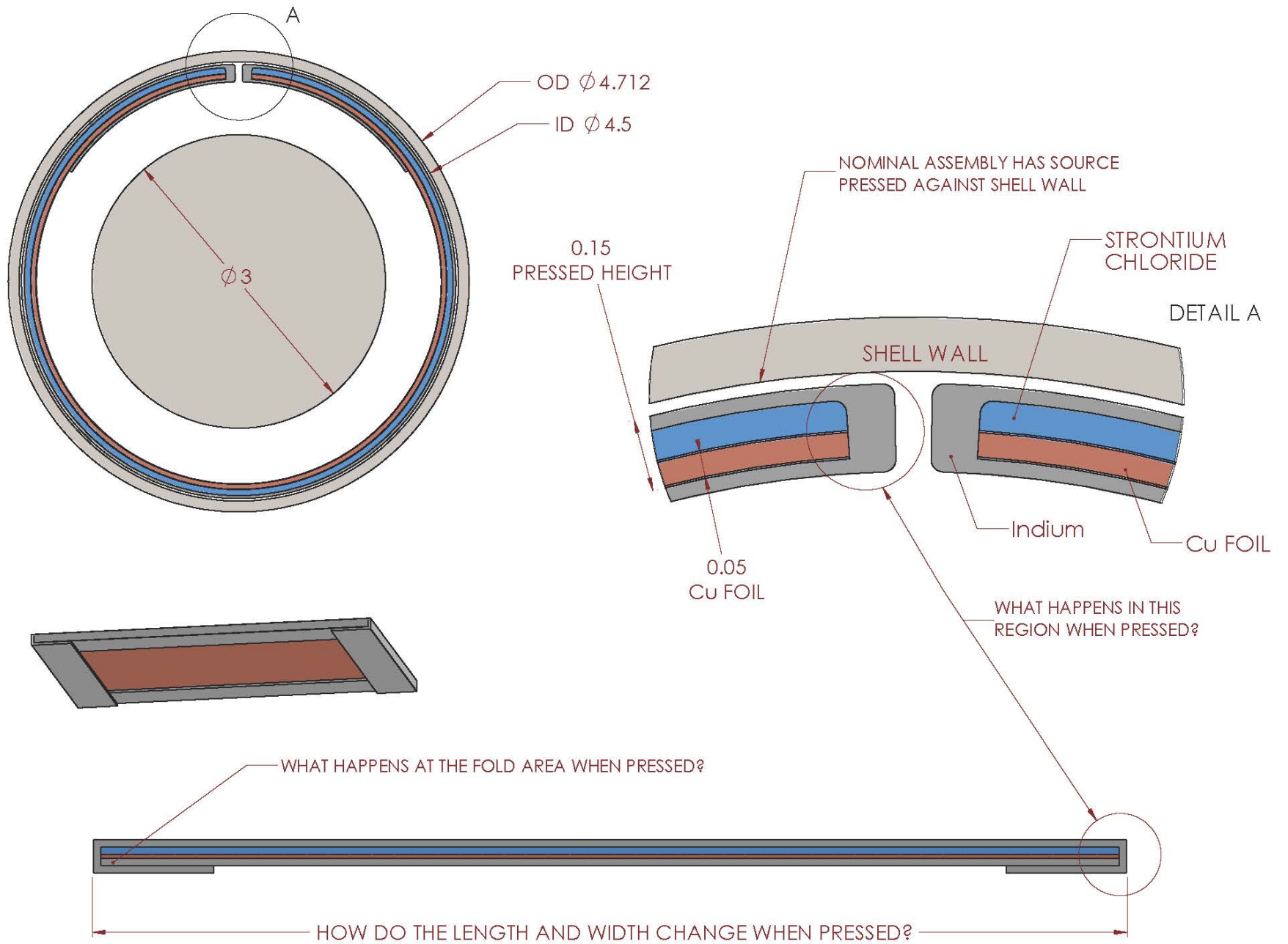
- ◆ 100 mCi Sr-90 (28.8 yr half-life) β source
 - ~ 3 betas enter the 8 mm long LAr gap per ns

- ◆ Manufacturer: IPPE Obninsk

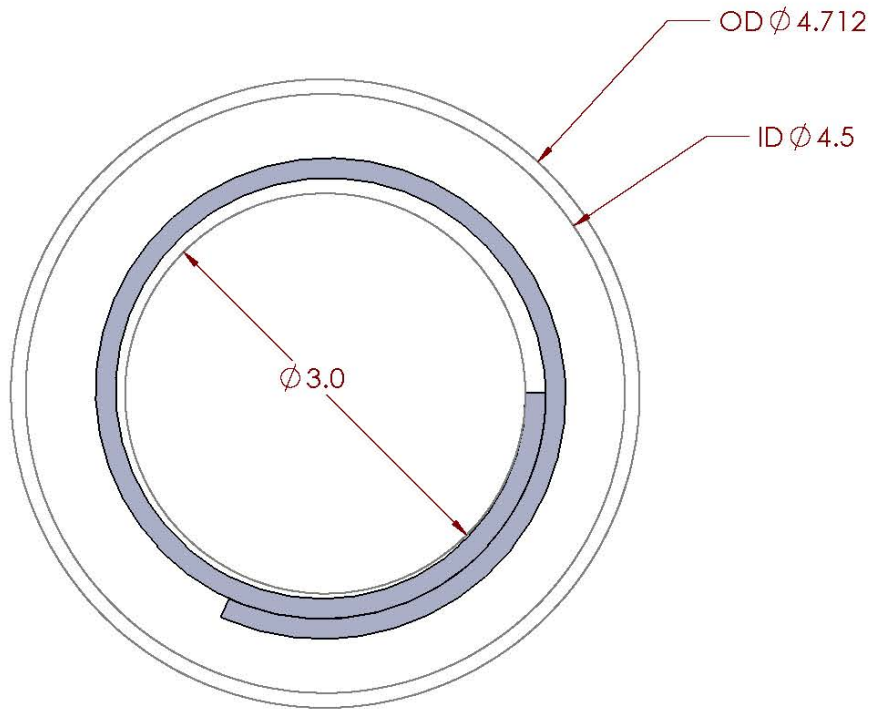
- Delays due to covid
- Technical difficulties – requested new rods



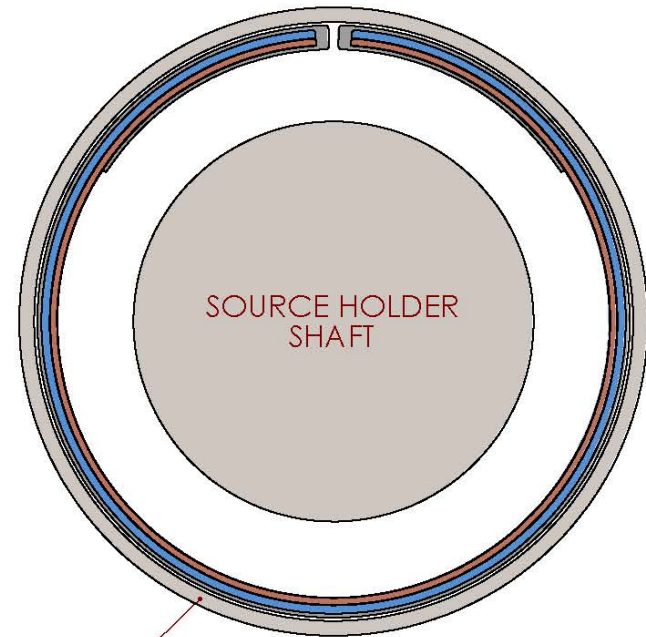
- Arrived in Moscow last week
- Unclear when the new rods will arrive in Obninsk



COILED FOIL DURING INSERTION



POSITION AFTER INSERTION (FOIL LAYERS SHOWN)



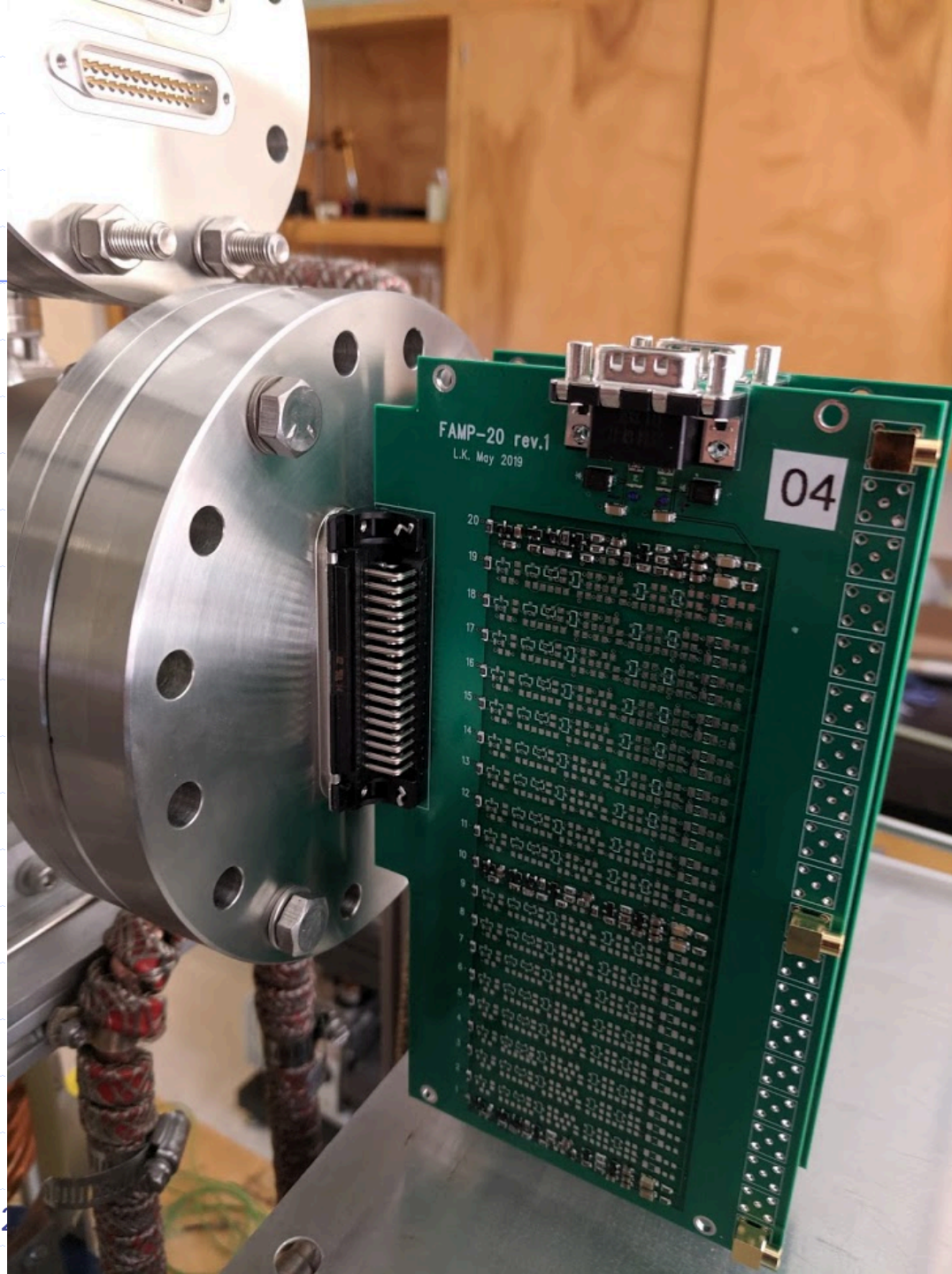
SOURCE HOLDER SHELL WALL

CONSIDERATIONS:

1. PRESSED FOIL DIMENSIONS: 10mm ALONG THE AXIS BY 13.3mm CIRCUMFERENCE.
2. AFTER INSERTION, FOIL SHOULD BE AS CLOSE TO THE INNER WALL OF THE SHELL PIECE AS POSSIBLE.
3. BRASS SPRING SHOULD ONLY BE USED IF IT CAN BE INSERTED WITHOUT FORCE AS SHOWN IN ASSEMBLY DOCUMENTATION.

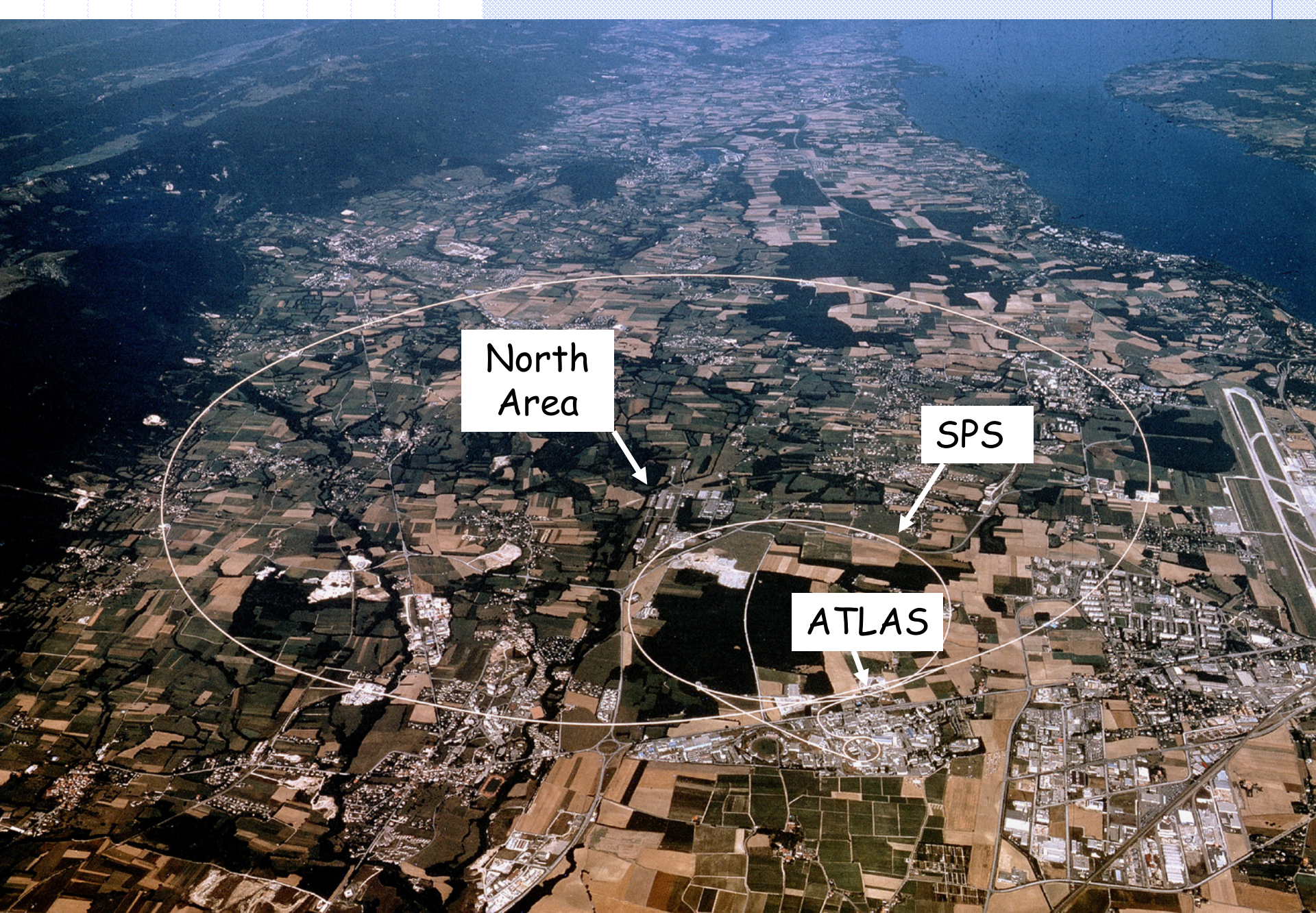
FCalPulse Preamps

- ◆ Amplifies the calorimeter signals
- ◆ 11 + 11 channels
- ◆ Designed and built at TRIUMF (Leonid)
- ◆ New, more robust design
- ◆ Printed-circuit boards completed
- ◆ Boards and components at assembly house
- ◆ Expected to be returned in a week
- ◆ Another week to test and certify



H4 beam line in the North Area

- ◆ SPS protons are de-bunched so there is no synchronization with the RF
- ◆ For adding middle segment pulses together we can use the other calorimeter signals and the scintillator signals to determine the relative phase.



North Area

SPS

ATLAS

Request for beam

- ◆ Officially the FCalPulse project is a part of the ATLAS Phase 2 Upgrade project
- ◆ Schedule for the SuperProtonSynchrotron (SPS) shows beam available starting 15 July and ending sometime in November of this year
- ◆ We have requested one week of beam
- ◆ Request submitted in late January
- ◆ No news yet.