

LNL User Service

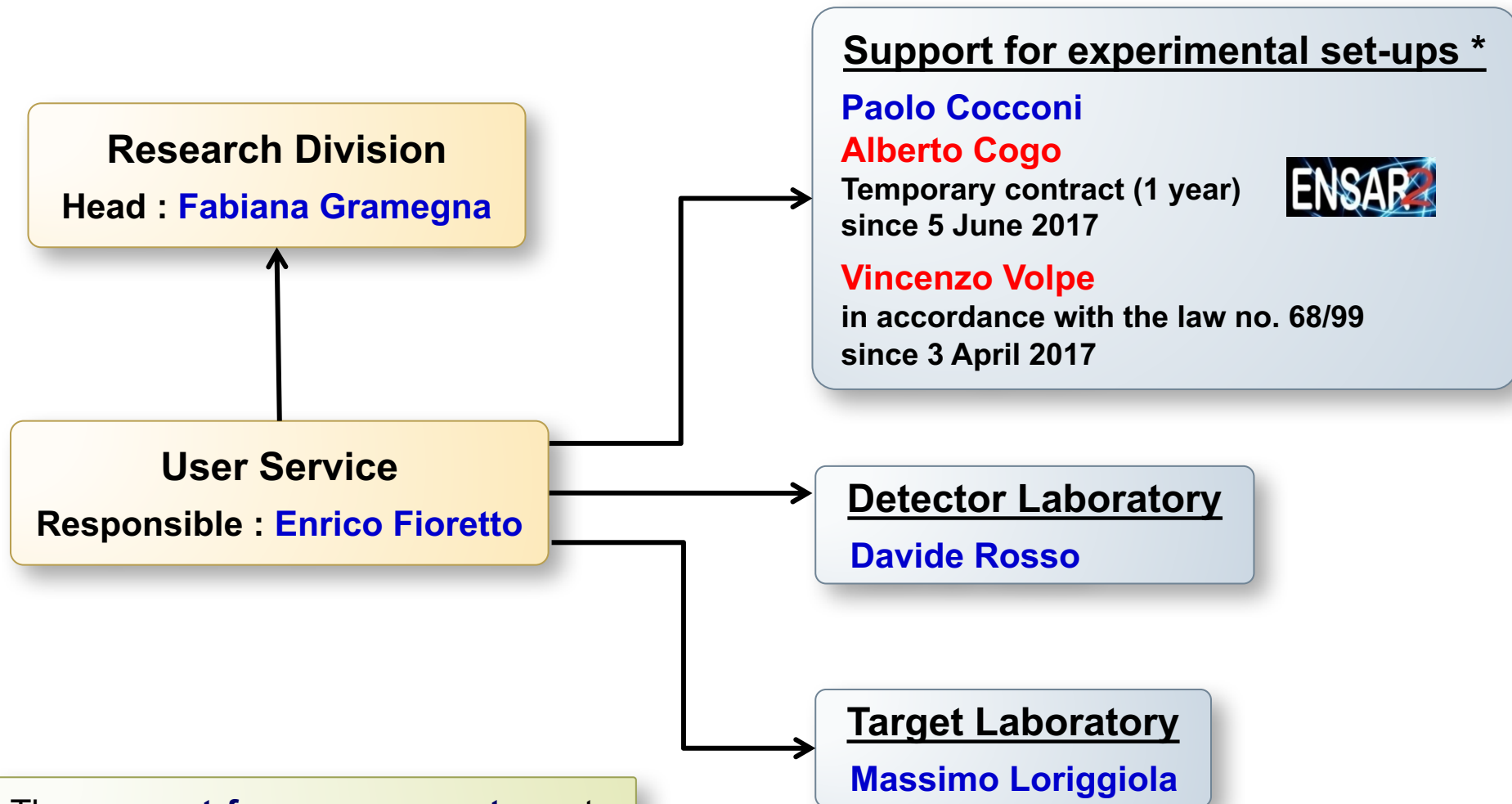
E. Fioretto



LNL Annual User Meeting

21 November 2017

Organization chart



The **support for vacuum systems** to experiments in data taking is provided by **Andrea Conte** belonging to the **Unit “Vacuum Technologies” of the Accelerator Division.**

* Luciano Costa retired since 1st October 2014

Support for experimental set-ups

Research Division has to use the contract open by the Technical Division with the external companies **Boscaro** and **S. Marco** for the maintenance and modifications of **electric** and **hydraulic plants**, respectively.

Procedure for changes of electric and hydraulic plants in the experimental areas or new installations →

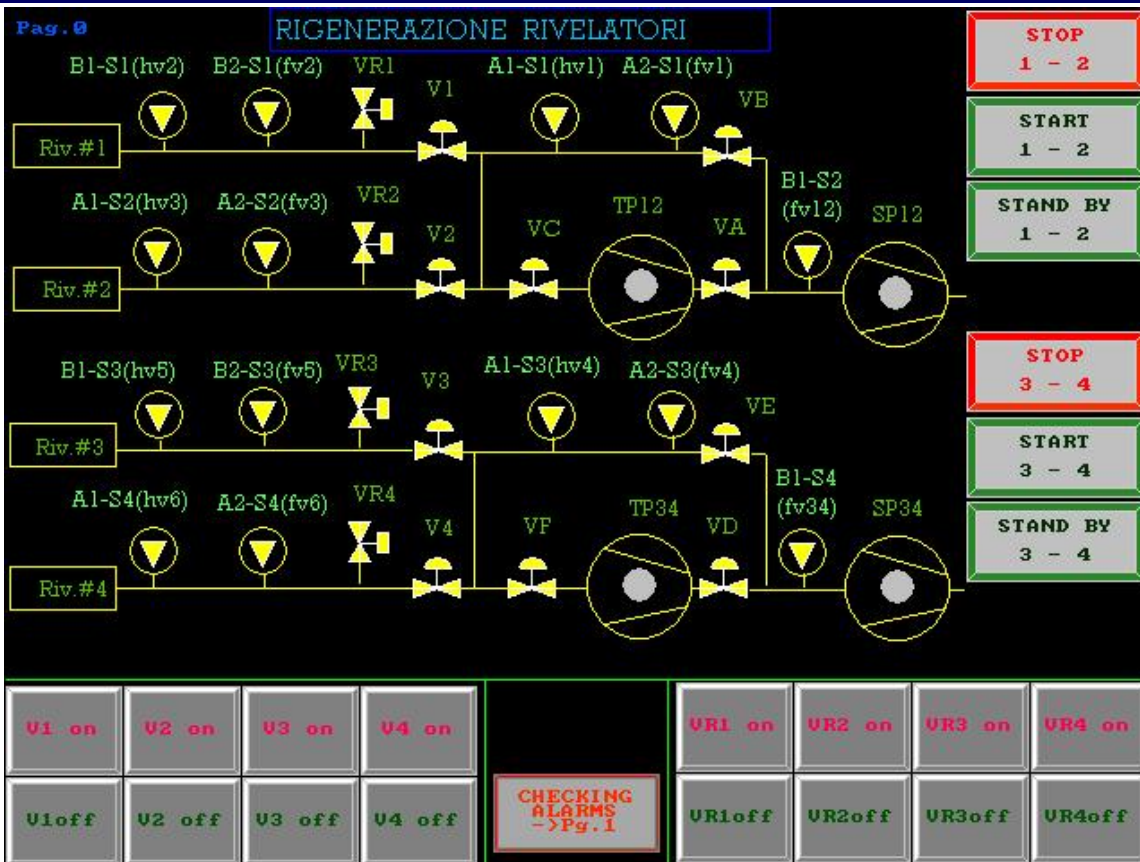
The responsible of the experimental set-up has to:

- **define the kind of intervention to be done in the experimental area** (with the support of the unit “Support for experimental set-ups”)
- **identify a contact person** who will discuss the kind and the procedure of intervention with the external company
- **ask for a cost estimation** to be sent to the Service “Plants Management & Safety”.

The User Service will support the works from the economical point of view in case of LNL infrastructures.

The experimental group will be supported by the unit “Support for experimental set-ups” during the works.

Detector Laboratory : equipment upgrade



Upgrade of the PLC based control system and instrumentation

Annealing and the recovery of 4 HPGe in parallel



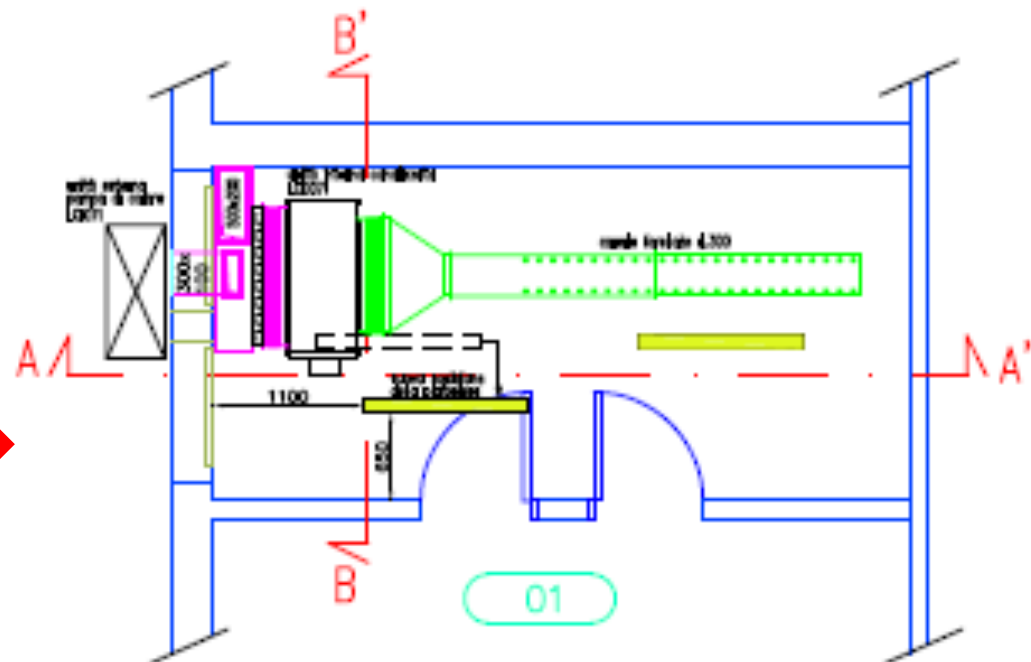
Target laboratory: laboratory (B103) upgrade

Preparation of stripper foils for the Tandem XTU
In controlled conditions of temperature and humidity **the yield is close to 80 % instead of 30%.**

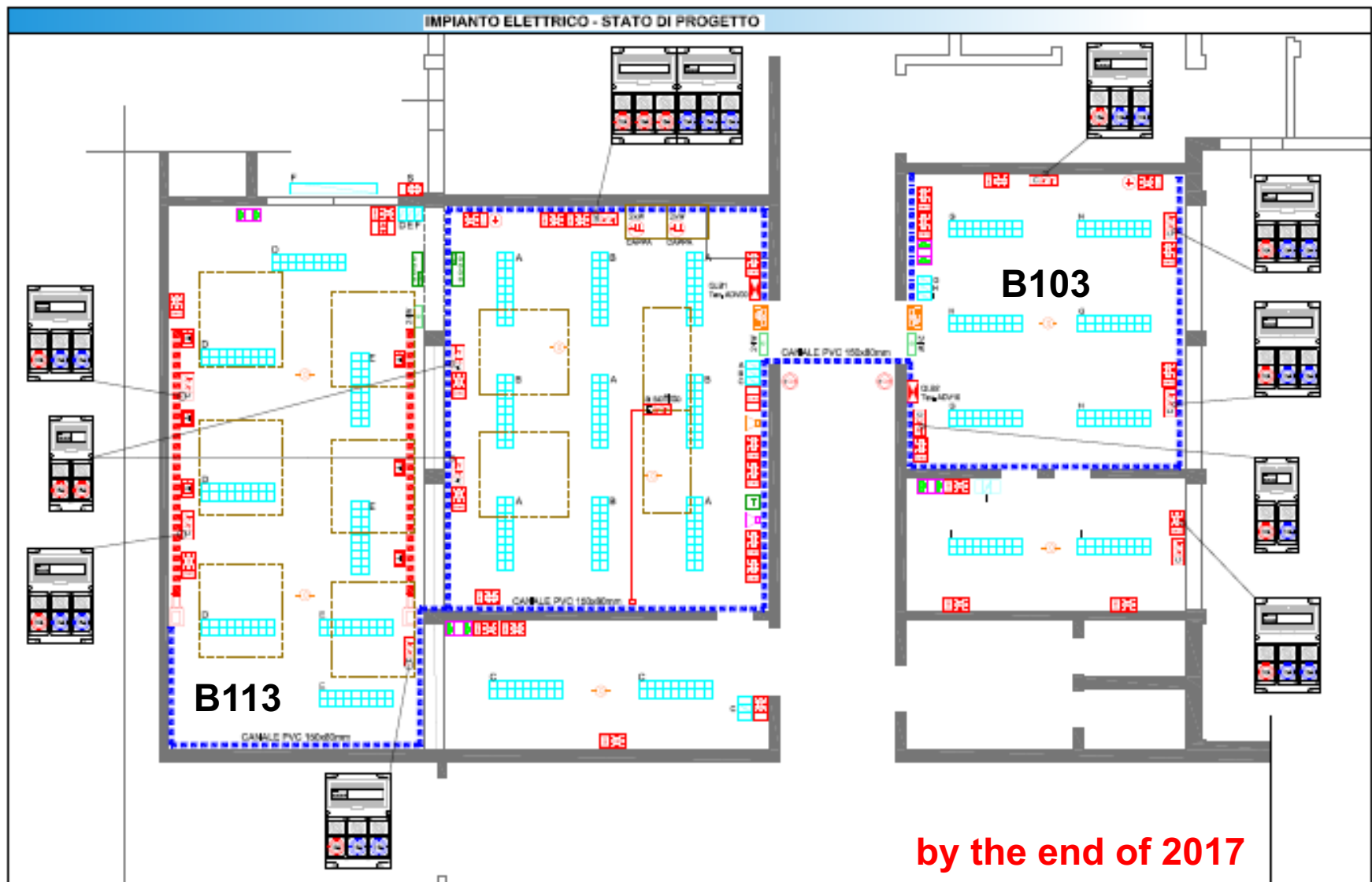
The working **time** for the preparation of **3 sets of stripper foils** (a complete set consists of 600 stripper foils with a thickness of $4 \mu\text{g}/\text{cm}^2$) **amounts to about 3 months.**



Controlled environment
 $T \sim 25^\circ\text{C}$ - humidity $\sim 50\%$



Target laboratory: infrastructure upgrade



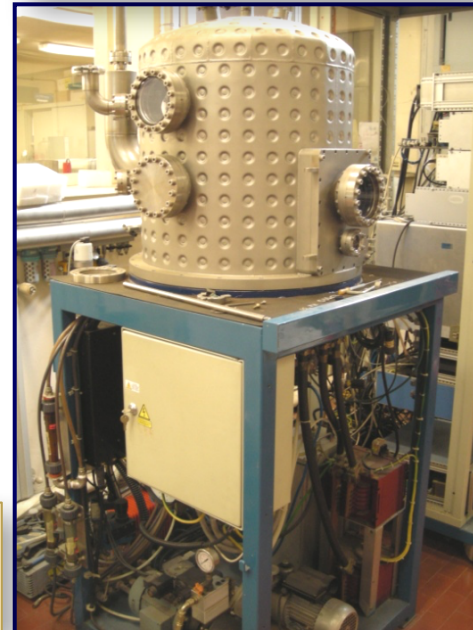
Renewal of the electric plant of both rooms

Target Laboratory : equipment upgrade

2 evaporation systems
with diffusion pumps
VARIAN 3317
**40 years
of operation**



PLC based control system
+ instrumentation



Evaporation system
with cryogenic pump

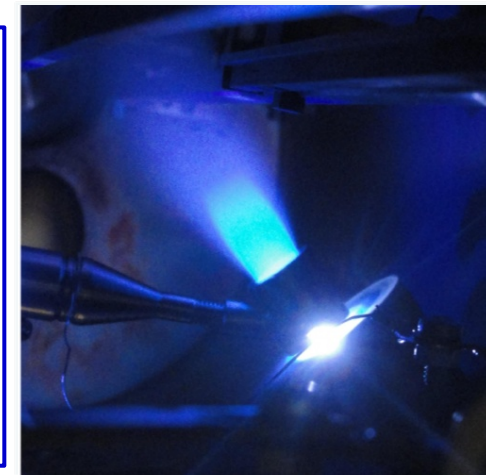
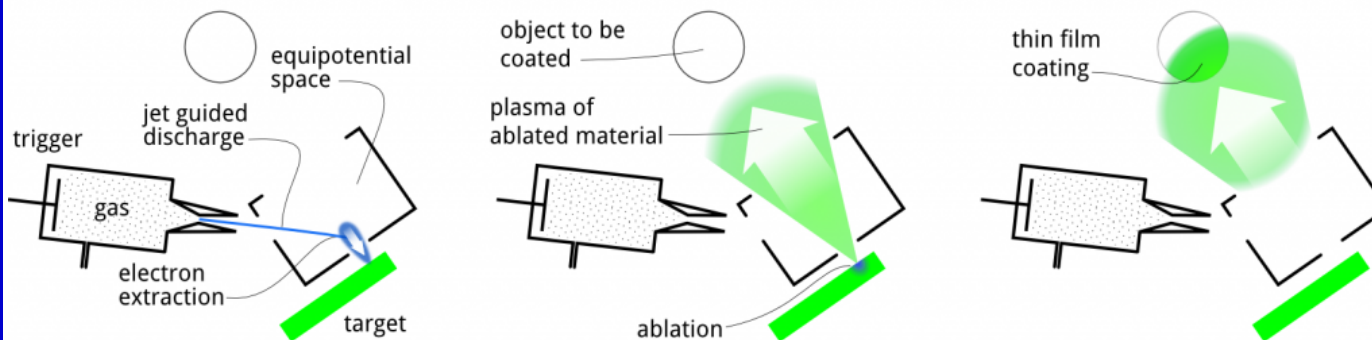


Target Laboratory : equipment upgrade

Ionized Jet Deposition is a Physical Vacuum Deposition (PVD) technique based on **pulsed electron ablation**. The discharge is supported by a gas jet and directed into a solid target generating a superficial explosion and consequent emission of very energetic material in the form of a plasma with the same composition as the target.

	IJD	PLD	PED/CSD	RF Mag Sputtering	E-Beam Evap.	Thermal Evap.
manufacturer eg	NOIVION	Coherent	Neocera	Genco	Ferrotec	Thermionics
Stoichiometry conservation/control	•	•	•			
High deposition rate	•				•	•
Fine thickness and roughness control	•	•	•	•		
Low temperature process	•	•	•	•		
Suitable for a large range of materials	•		•	•		
Industrially viable	•	*		•	•	•
Price	\$\$	\$\$\$\$	\$\$	\$\$	\$\$	\$
Ion Energy	< 100eV			1 – 10 eV	0.1 eV	
Technology comparison summary						

1 Discharge ————— 2 Ablation ————— 3 Coating



Target Laboratory : form for target request

General Information

Experiment:

Acronym :		Title:	
Activity :		Accelerator :	

The form has to be submitted with the scientific proposal

Spokesperson:

Family name :		First name :	
Institution :			
Address :			
Phone :		Fax :	
E-mail :			

Feedback about the feasibility of targets for experiments to the scientific coordinator of the Tandem/PIAVE-ALPI accelerator complex

Targets

Target		Characteristics			
Element, isotope, compound	Thickness	Allowance(%)	Uniformity(%)	Targets Number	Self supporting
208Pb	150ug cm ² +50ug cm ⁻²	10	10	3	Y
Backing		Characteristics			
Element, isotope, compound	Thickness	Allowance(%)	Uniformity(%)		

Laboratory planning
Infrastructure and equipment upgrade