

# EuAPS – EuPRAXIA Advanced Photon Source

Project Management

INFN-LNF 04/07/22

Antonio Falone

Proponente: INFN

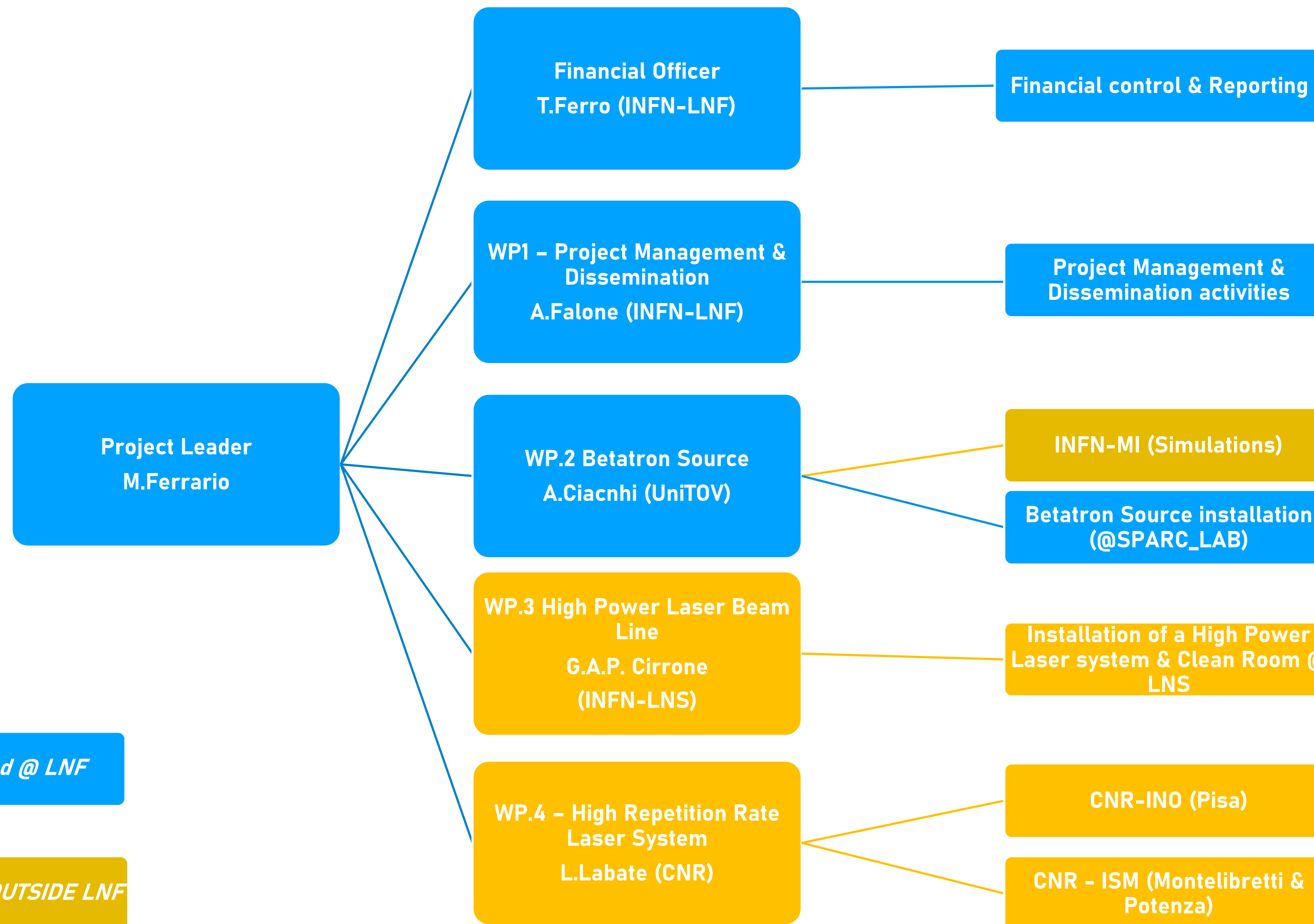
Co-Proponente:

UniTov

CNR

Unità Operative:

- U01 : INFN - LNF
- U02 : INFN - LNS
- U03 : INFN - MI
- U04 : CNR - INO (Pisa)
- U05 : CNR - ISM (Montelibretti RM)
- U06 : CNR - ISM (Tito Scalo PZ)
- U07: UniTov



Costs included in the request for funding (€)			
	To be located within the eight southern regions	To be located outside the eight southern Regions	Total requested grant
Fixed term personnel specifically hired for the project	270.000,00	1.258.000,00	1.528.000,00
Scientific instrumentation and technological equipment, software licenses and patent	6.917.812,47	10.865.386,00	17.783.198,47
Open Access, Trans National Access, FAIR principle implementation	0,00	0,00	0,00
Civil infrastructures and related systems	1.300.006,38	280.000,00	1.580.006,38
Indirect costs, including running costs	575.081,15	869.302,00	1.444.383,15
Training activities	0,00	15.000,00	15.000,00
<b>Total</b>	<b>9.062.900,00</b>	<b>13.287.688,00</b>	<b>22.350.588,00</b>

## WP 1 – Project Management & Dissemination @LNF

WP	Bimester	Milestone ID	Milestone Name	Costs (€)
1	1	M.1.1.1	Approval of the Project Management Plan	0,00
	3	M.1.3.1	Meeting on defining EuAPS Data Policy	16.873,00
	4	M.1.2.1	Website publication	23.046,00
	6	M.1.1.2	Hiring of the infrastructure manager	28.396,15
	12	M.1.4.2	Draft Report on EuAPS Results for EuPRAXIA TDR	62.965,85
	14	M.1.3.2	Meeting on EuAPS Data Management Experience	34.569,00
<b>TOTALE</b>				<b>165.850</b>

## WP 2 – Betatron Source @ LNF (except 267000@MI & 400.000@UniTOV)

WP	Bimester	Milestone ID	Milestone Name	Costs (€)
2	3	M.2.4.1	Specs for test chamber and electron and ion spectrometers; call for tenders	0,00
	4	M.2.1.1	Hardware commissioning	302.452,00
	4	M.2.4.2	Installation of the electron and ion spectrometers in the test chamber	83.816,31
	4	M.2.6.1	Design of cross correlation methods	395.900,00
	6	M.2.2.1	Capillary - gas jet test report	1.450.920,00
	6	M.2.3.1	Procurement of phase noise analyzer	162.675,00
	6	M.2.5.1	Design user endstation	181.900,00
	8	M.2.4.3	Commissioning of the electron and ion spectrometers	838.165,24
	10	M.2.3.2	Procurement of laser oscillator	391.620,00
	12	M.2.2.2	Laser transport	3.598.303,00
	12	M.2.6.2	Advanced Photon Diagnostics Commissioning	203.300,00
	13	M.2.5.2	Assembly of the chamber with instrumentation	524.300,00
	13	M.2.2.3	Laser Transport	773.041,00
	14	M.2.4.4	Commissioning of the electron and ion spectrometers	263.936,90
	15	M.2.1.2	Numerical characterization of betatron source completed	184.397,00
	15	M.2.2.4	Plasma Source Commissioning	47.080,00
15	M.2.4.5	Report on pilot experiments with the electron and ion spectrometers	12.481,55	
15	M.2.5.3	Test end station report	42.800,00	
<b>TOTALE</b>				<b>9.457.088,00</b>

## WP 3 High Power Laser System beam line

WP	Bimester	Milestone ID	Milestone Name	Costs (€)
3	2	M.3.1.1	Clean room design	0,00
	3	M.3.2.1	Design	160.500,00
	5	M.3.2.2	Procurement and first payment	1.005.801,67
	5	M.3.4.1	Design and procurement	428.000,00
	5	M.3.1.2	Procurement and first payment	278.191,66
	7	M.3.1.3	Second payment	417.300,00
	8	M.3.2.3	Second payment	1.508.702,50
	9	M.3.5.1	Design, procurement and mechanical realization of diagnostic	428.000,00
	10	M.3.1.4	Third payment	417.300,00
	12	M.3.1.5	Assembling, commissioning and fourth payment	278.200,00
	12	M.3.2.4	Third payment	1.508.702,50
	12	M.3.3.1	Design and procurement	428.000,00
	15	M.3.2.5	Assembling and commissioning and fourth payment	1.005.801,67
	15	M.3.3.2	Realization and tests	0,00
15	M.3.5.2	Calibration under conventional beams	0,00	
<b>TOTALE</b>				<b>7.864.500,00</b>

SN7 @ LNS

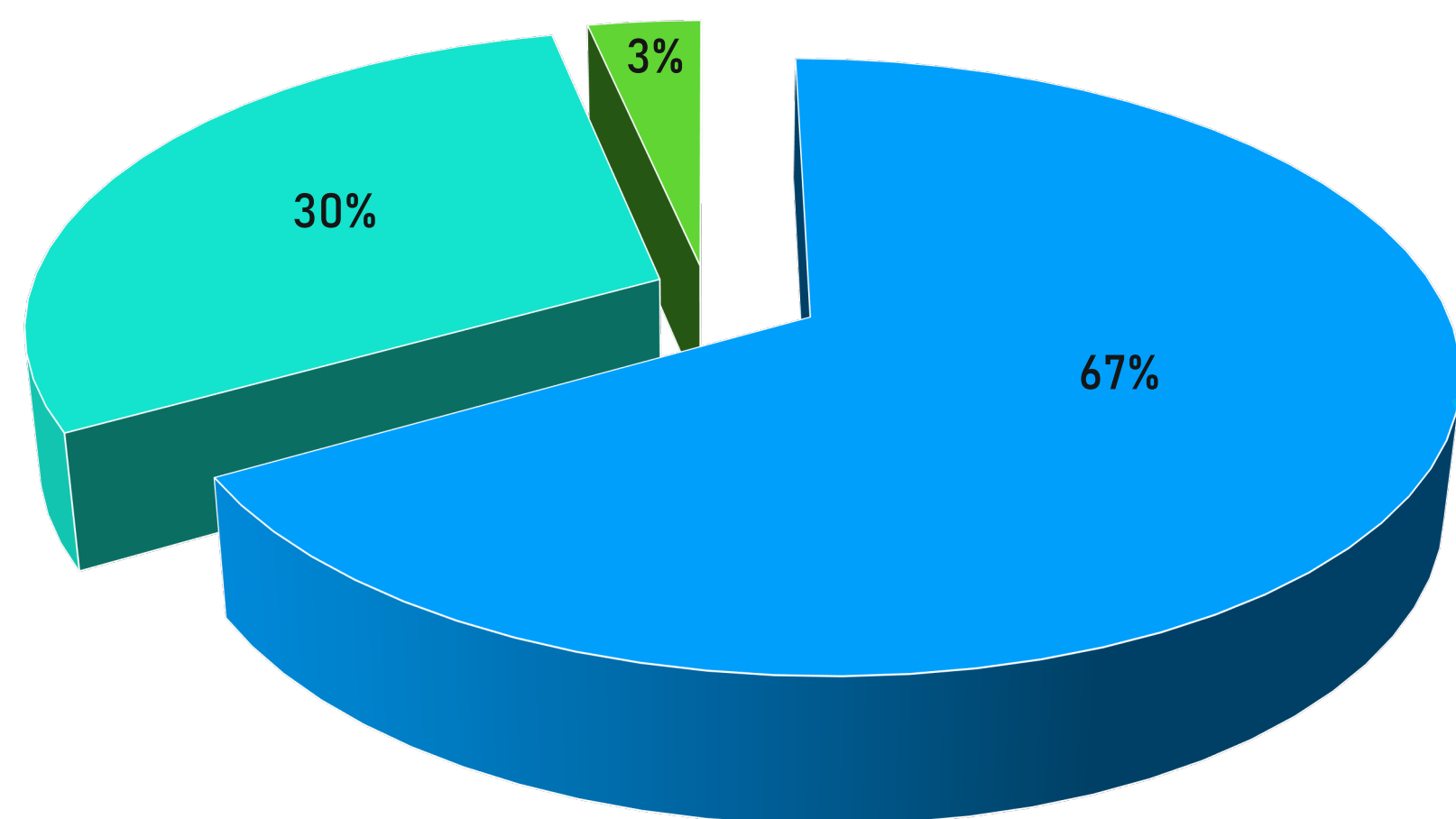
## WP 4 High Repetition Rate laser system

WP	Bimester	Milestone ID	Milestone Name	Costs (€)
4	2	M.4.2.1	Laser transport and manipulation full-scale modelling	42.800,00
	3	M.4.1.1	Laser system tender and advanced payment (20%)	784.769,96
	8	M.4.3.1	Clean room commissioning	299.600,00
	8	M.4.1.2	Laser second payment (40%)	1.612.335,92
	10	M.4.3.2	Procurement of optical tables	64.200,00
	10	M.4.1.3	Laser third (final) payment (40%)	1.663.544,12
	11	M.4.2.2	Definition and procurement of optics, optomechanics, etc. for laser beam transport	117.700,00
	11	M.4.2.3	Definition and procurement of laser beam temporal diagnostics	96.300,00
	13	M.4.3.3	Procurement of vacuum pipes/pumps/steering chambers for beam transport	139.100,00
	14	M.4.3.4	Procurement of vacuum chamber for end station	42.800,00
<b>TOTALE</b>				<b>4.863.150,00</b>

@ CNR



■ INFN ■ CNR ■ UniTOV

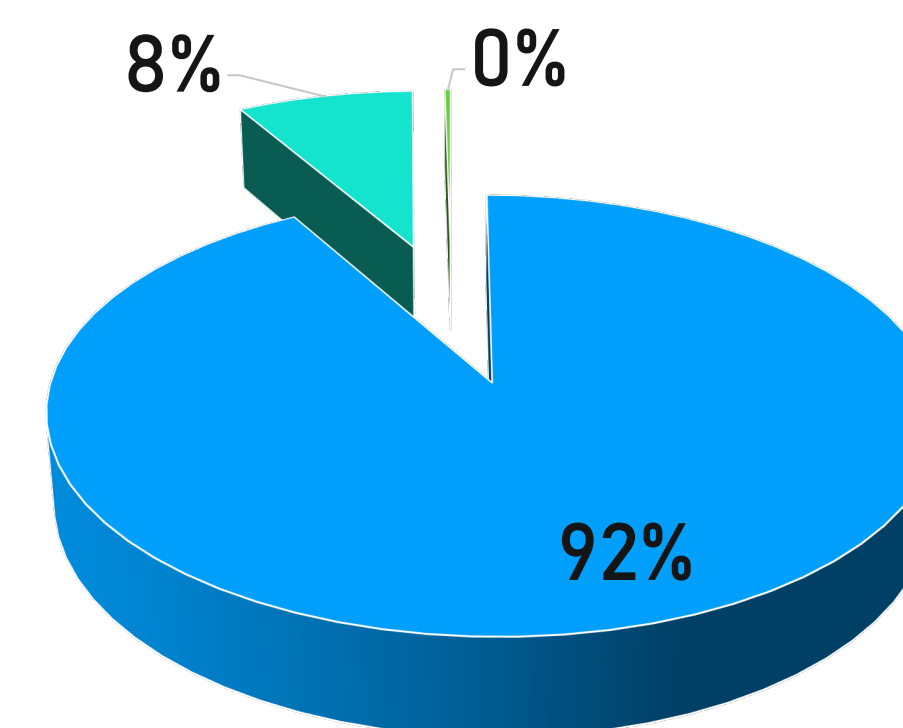


Institution	Budget (€)
INFN	14.935.838
CNR	6.660.750
UniTOV	754.000

INFN-LNF	Amount (€)
Hardware	5.402.700
Personell	470.000
Training	15.000

+ Indirect Cost 7%

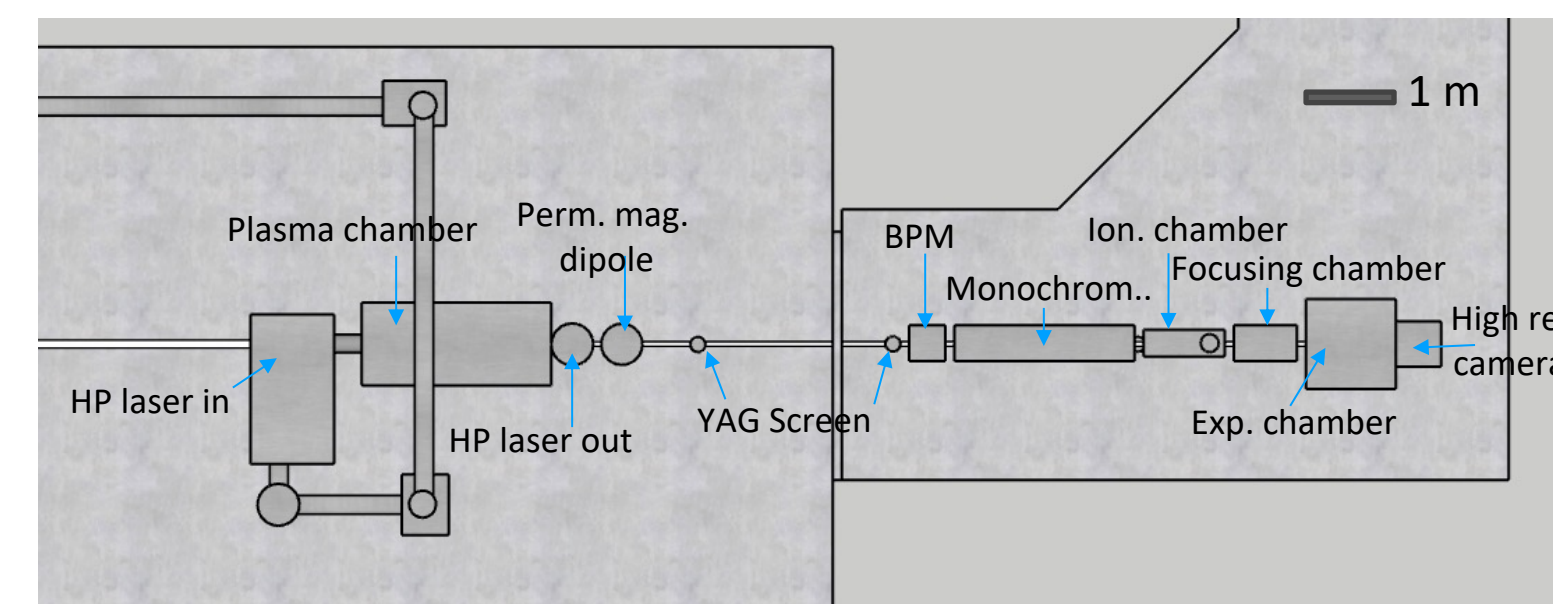
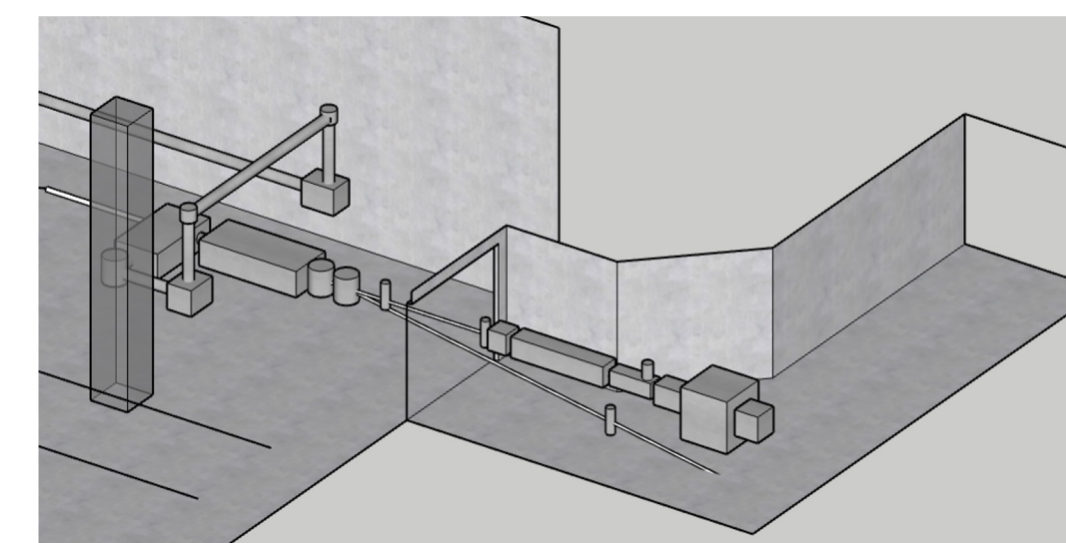
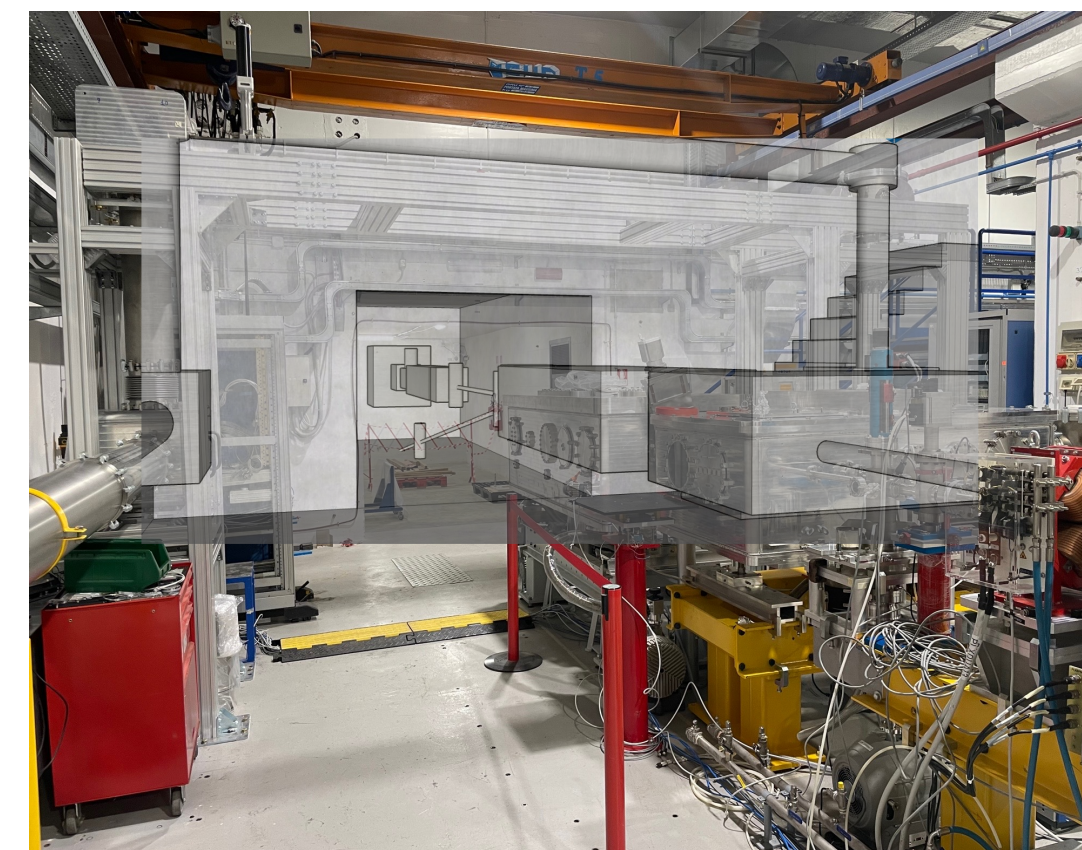
■ Hardware ■ Personnel ■ Training



## □ WP.1 – Project Management & Dissemination

## □ WP.2 – Betatron source

- 2.1 INFN-Milan simulations
- 2.2 Plasma source INFN-LNF
- 2.3 Synchronization INFN-LNF
- 2.4 X rays diagnostics CNR-ISM-Potenza
- 2.5 End user station Unitov
- 2.6 X rays temporal characterization CNR-ISM-Montelibretti



Laser oscillator	366.000,00 €
Monochromators	1.018.000,00 €
Optics for laser focusing system	427.000,00 €
Interaction chamber gas extraction	305.000,00 €
X-rays 2d detector	158.600,00 €
Plasma diagnostics opto-mechanics and optics	122.000,00 €
Focusing X-rays optics	183.000,00 €
Plasma source	61.000,00 €
Laser beamline diagnostics	61.000,00 €
Vacuum parts for all three operative units	488.000,00 €
phase noise analyzer	152.500,00 €
Compact laser 2mJ, <100fs, 1kHz	499.000,00 €
Optical table and optics	73.200,00 €
High intensity laser extraction system	244.000,00 €
Ultra stable femtosecond laser for pump and probe	122.000,00 €
Imager	146.400,00 €
New compressor for FLAME laser (optics+vacuum)	366.000,00 €
New beamline including magnets to separate electron from photons, vacuum	244.000,00 €
Laser compressor near the interaction region	366.000,00 €

- Acquisti da parte LNF
- Integrazione e installazione @ SPARC\_LAB
- Commissioning

Idealmente entro 2023

- Tecnologo TD – Infrastructure Manager (entro 12 mesi secondo bando)
- Tecnologo TD – Ingegnere/ Fisico opto-elettronico | Esperto laser
- Tecnologo TD – Ingegnere / Fisico – Vacuum & Plasma Source

Composizione Progetto	INFN (LNF, LNS, MI) – CNR – UniTOV
Istituzione Capofila	INFN
Budget	22.350.588
Budget LNF	5.887.700 (+ 7% Costi indiretti)
Squadra dei Laboratori	<ul style="list-style-type: none"> <li>• Team Eupraxia</li> <li>• Servizi: <ul style="list-style-type: none"> <li>- Laser</li> <li>- Meccanica</li> <li>- Vuoto</li> <li>- RF</li> </ul> </li> </ul>
HW Laboratori	Componentistica per beam line / laser (vd slide 11)
Richieste di nuovo personale	<ul style="list-style-type: none"> <li>• Infrastructure Manager</li> <li>• Tecnologo Vuoto/ sorgenti Plasma</li> <li>• Tecnologo optoelettronico / Esperto Laser</li> </ul>
Rendicontazione	<ul style="list-style-type: none"> <li>• Acquisti hardware</li> <li>• Reportistica obiettivi intermedi</li> </ul>