# **WBS's e Responsabilità**



### Obiettivi del meeting

Bologna, 11/10/2021 Sergio Bertolucci

#### Status di LBNF/DUNE

### **Status di DUNE-IT**

### Piano di lavoro per il 2022 (e seguenti)

### Struttura organizzativa in DUNE-IT e in LBNF/DUNE

### per vs referenza

	Doc/D SN2-DUNE-SAND-PM-220-CDR	Rev. Validità 1.0 Rilasciato
ituto Nazionale di Fisica Nucleare		
		1 July 2021
Conceptual Design Report		
Conceptual Design Report of the SAND detector		
This document is the Conceptu complex focusing on the activitie	Abstract al Design Report of the SAND D es involving INFN groups.	etector at the DUNE Near Detector
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Distribution List:		
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### **PDS WBS**







# Contributo europeo

Francesco Terranova Meeting di DUNE Italia 12 Nov 2021

- Abbiamo presentato il possible contributo europeo al workshop di Luglio 2021
   basandoci su quanto avevamo preparato per il CTS dell'INFN
- Items di cui siamo responsabili [100% core costs, 75% labor nel Master Plan di DUNE (P6)]:
  - Responsabilità dello sviluppo, test, procurement dei SiPM
  - Responsabilità dello sviluppo, test, procurement delle barre WLS
  - Responsabilità dello sviluppo, test, procurement dei **filtri dicroici** (possible contributo dal brasile)
  - Design, meccanica e produzione delle membrane tiles
  - Design e produzione della **warm electronics**
  - Sistema di **calibrazione** delle membrane tiles
- Item sui quali collaboriamo con gruppi US [25% labor in P6]: cold electronics, power-overfiber, optocoupler



# Gruppi finora coinvolti

Francesco Terranova Meeting di DUNE Italia 12 Nov 2021

Gruppo	Attività finora	Task possibili	Note	
Bologna	SiPM (+non shrinked)	SiPM, warm electronics	Da armonizzare con le	
Ferrara	SiPM (+non shrinked)	SiPM, warm electronics	detector	
Milano	Simulazione, Power- over-fiber	Analisi, Power- over- fiber	Interesse anche per altri item	
Milano Bicocca	SiPM, cold electronics, WLS, filtri dicroici	SiPM, cold electronics, WLS, filtri dicroici	Sta crescendo il gruppo di analisi e simulazione	
Napoli	SiPM	Cold box tests @CERN, warm electronics	Filtri dicroici e coupling SiPM- WLS	
E'un'ott	ività angoro in stato iniziale	@CERN, warm electronics	coupling SiPM- WLS	

E' un'attività ancora in stato iniziale e che offre opportunità di aggregare nuovi gruppi, anche al di fuori di DUNE-Italia

### **SAND** major components











# SAND WBS

EMC and GRAIN





# **Technical Working Groups and Interfaces**

#### C. Montanari DUNE-IT Meeting – November 11, 2021

- ✓ The following working groups can be easily identified:
  - ✓ Magnet and yoke

#### ✓ ECAL

✓ Inner Tracker (this will be split in sub-WGs)

✓ GRAIN

Design & prototyping

- ✓ Muon chambers (decision making process)
- ✓ Slow controls (reference persons)
- ✓ DAQ, trigger and Beam interface (reference persons)
- ✓ The following interfaces are also required:
  - ✓ Electrical equipment
  - ✓ Installation & Integration (logistic)
  - ✓ Cryogenics (interface)
  - ✓ Safety

✓ Data Management and Computing (shared with Software and Analysis Board)

- ✓ Also very important:
  - ✓ Documents collection, organization and distribution



- ✓ Straw tubes and targets construction
- ✓ Readout electronics
- Gas system
- Support structure, mechanics and alignments

Additional working groups can be defined, according to specific needs.



vame	Duration	start	Hinish
DS	2465.88 d	01/04/21	31/12/27
SiPM	1187 d	01/07/21	30/09/24
Definition of the tender and specs	272 d	01/10/21	30/06/72
Measurement of absolute PDF at 77 K	364 d	01/07/21	30/06/22
SiPM procurement	821 d	01/04/22	30/06/24
Tests of I-V curves at 77 K and DCR	730 d	01/10/22	30/09/24
Test of samples (correlated noise, S/N, etc.)	730 d	01/10/22	30/09/24
electronics	1370 d	01/04/21	31/12/24
Optimization of the cold amplifier	183 d	01/07/21	31/12/21
Aging test of the amplifier	364 d	01/07/21	30/06/22
Warm-cold electronics interface	274 d	01/04/21	31/12/21
Full test of the electronic chain	272 d	01/07/21	30/03/22
Production of the SiPM mounting boards	88 d	01/01/23	30/03/23
Production and mass test of the amplifier	365 d	01/01/24	31/12/24
Production of the signal lead boards	88 d	01/01/23	30/03/23
module	2189 d	01/01/21	30/03/27
Validation of the supercell	182 d	01/04/21	30/09/21
Mass test of the supercell	549 d	01/07/23	31/12/24
Assembly of the modules	1003 d	01/01/23	30/09/25
contingency and partia parallelization	183 d	01/07/25	31/12/25
Installation and Q&A at SURF	453 d	01/01/26	30/03/27
analysis	2465.88 d	01/04/21	31/12/27
Analysis of ProtoDUNE-SP Run II	455 d	01/04/22	30/06/23
Development of double calorimetry simulation in DUNE	455 d	01/04/21	30/06/22
Simulation framework for low energy events	913 d	01/07/21	31/12/23
Data analysis during commissioning	275 d	01/04/27	31/12/27
Data analysis on double calorimetry for beam events and low energy events	457 d	01/10/26	31/12/27



k Name	Duration	Start	Finish	
e	1	1	1	
WLS bars from Glass-to-Power	2100 d	01/04/21	31/12/26	
Test of optical and cryogenic properties	182 d	01/04/21	30/09/21	
Test in a megacell	364 d	01/07/21	30/06/22	
procurement and Q&A	453 d	01/01/25	30/03/26	
Contribution to installation	274 d	01/04/26	31/12/26	
SiPMs	2374.88 d	01/07/21	31/12/27	
SiPM coupling in standarlone mode	183 d	01/07/21	31/12/21	
Test of megacell readout	361 d	01/07/21	30/06/22	
Procurement of SiPMs	546 d	01/01/24	30/06/25	
Contribution to mass tests	547 d	01/04/24	30/09/25	
Constribution to installation	365 d	01/01/27	31/12/27	

