

Preventivi 2023 ATLAS

S. Leone per il Gruppo ATLAS-Pisa

Preventivi 2023 di CSN1, Sezione di Pisa, 30 Giugno 2022

A large group of approximately 80 people, mostly men, are posing for a group photo. They are arranged in several rows, with many standing on a wide, light-colored stone balcony that curves around a central courtyard. The balcony has a decorative metal railing. Below the balcony, a group of about 10 people is standing on the cobblestone ground of the courtyard. The building is light-colored with a pinkish-red trim along the balcony edge. In the background, a red flag with a white cross is visible on a pole, and a cloudy sky is above. The overall atmosphere is professional yet relaxed.

XV Workshop ATLAS Italia

27 - 29 Giugno 2022
Aula Magna Fratelli Pontecorvo
Polo Fibonacci - Pisa

3 giorni di intense discussioni scientifiche, finalmente in presenza, dalla prima mattina a notte!
Piu` di 100 partecipanti, moltissimi giovani, con l'intervento di Antonio Zoccoli e Chiara Meroni (INFN) e Andreas Hoecker (ATLAS spokesperson) Francesco Lanni (responsabile Upgrade fase2)

Conclusions

Multi-threaded reconstruction software (AthenaMT) [ATL-SOFT-PUB-2021-002](#)

- The benchmark jobs use real data from run 357750 taken during 2018, with 250 events per worker process or thread
- The data events are approximately 100 MB
- Tests on an Intel Xeon

CONCLUSIONS AND FUTURE PLANS

Prototypes of gas gaps, readout panels, mechanics, RPC singlets and triplets have been produced

- Successful tests performed on each single part before the assembly of RPC singlets and triplets
- Cosmic Ray tests on the RPC triplet prototype using BLS78 FE electronics foreseen in the following weeks

Final Design Review on Mechanics and Singlets expected in the following month

- Pre production to start shortly after

FE ASIC overall functionality tested on the prototype, some problems observed on the TDC scaler, to be addressed on the next submission

DCT for BI under design, prototype of DCT for BM-BO produced and under test

Involved Italian groups:
Roma1, Roma2, Bologna, Pavia, Cosenza, Napoli, Frascati

shop ATLAS Italia

the ITk pixel end-caps and service routing

ng exclusion limits on SUSY particle

ng to interconnect SUSY ↔ SM

Take advantage of preservation, reinterpretation and combination of analyses to expand coverage, hopefully soon

LHC Run 3 is about to start: new strategies, new data, new perspectives...

LUCID in Run3 and preparation for Phase2

Case study: itk Track finding

- Goal is to use GNN and graph algorithms to convert a set of hits (spacepoints) into a set of track candidates (each candidate is a list of spacepoints)
- Performance reported in [PLOTS: IOTR-2022-01](#)

depending on analyses needs, if personpower provided by PA groups

- non-standard usage of CP objects from analyses must be approved by CP groups

continuous interactions with:
Detector groups, PA groups, Trigger, DQ, DataPrep, PhysVal, Software & Computing, PMG, MCPProduction...

TileCal in Run 3 and preparation for Phase 2

Easy Tuned!

We have received a Slice Test I have prepared a FELIX-based

First tests with Slice Testboard

Giulia Di Gregorio

ATLAS Italia - Simona Santoro

- Several papers/notes are in final stage or already approved on

ATLAS EXPERIMENT

The ATLAS Muon System Run 3 status

Run: 423110
Event: 789870
2022-05-28 11:02:10 CEST

[XV Workshop ATLAS Italia](#)
[Pisa, 27-29 June 2022](#)

¹Luca Martinelli, ²Marco Sessa

¹Scienze Università e INFN, Roma 1
²Università e INFN Roma Tre

Workshop ATLAS Italia

29 Giugno 2022
Pisa, 27-29 June 2022

AS INFN

UNIVERSITÀ DEGLI STUDI DI UDINE

Most of the material borrowed from reports at the [ATLAS week](#)

ATLAS ITK

up

prototypes

900 GeV SB collisions

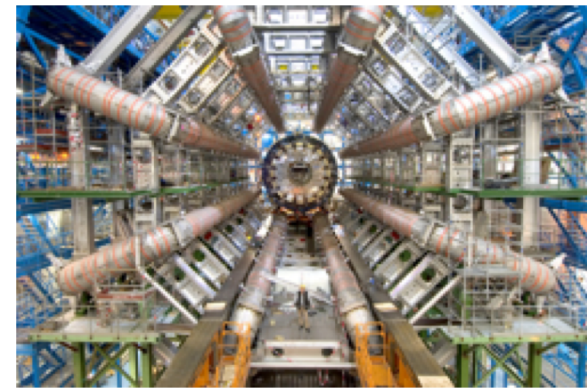
Values

2

group structure was not enough

a bunch of active people (to start with) ... and created a "task force"

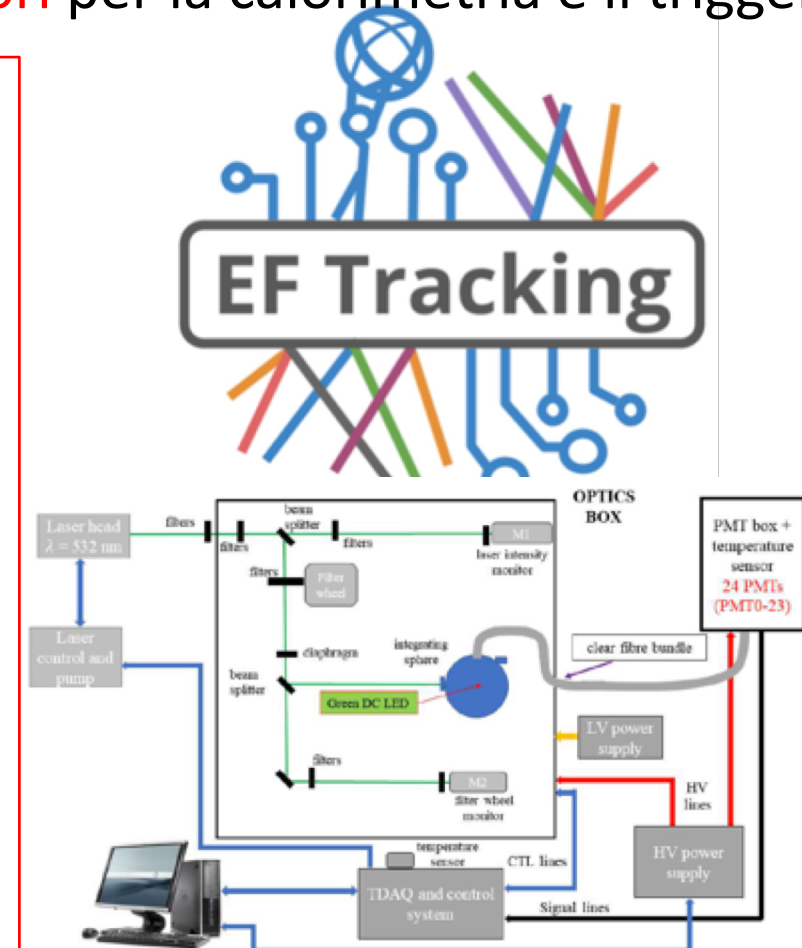
ks to Giuseppe Carratta, Alessandro Lapertosa, Giada Julia Manco, Alberto Rescia, Antonio Sidoti for joining

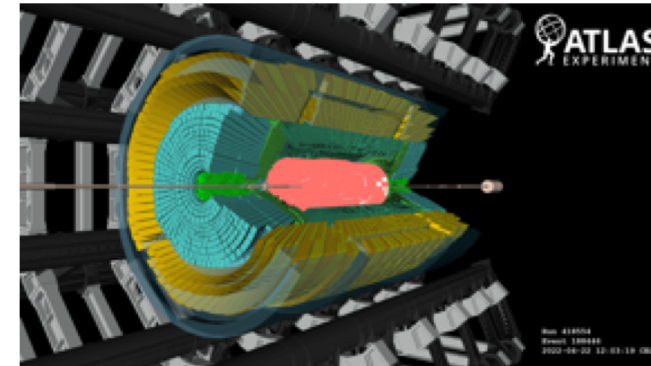


A PISA l'attività si articola in: **Analisi dei dati** e **Sviluppo di rivelatori** per la calorimetria e il trigger

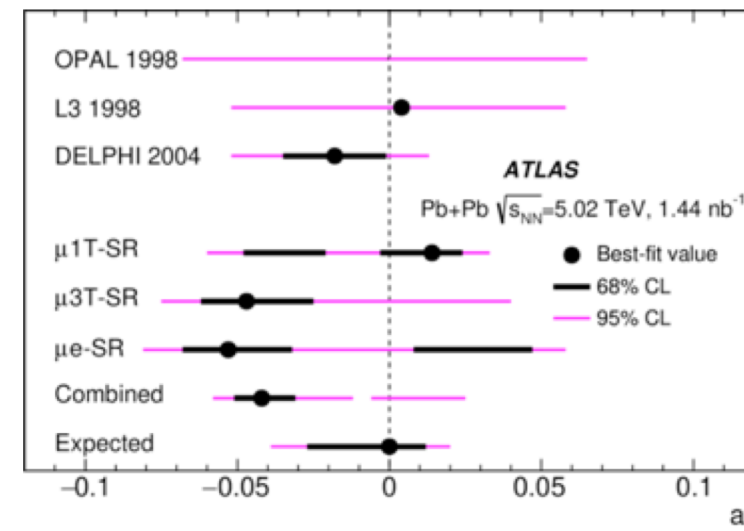
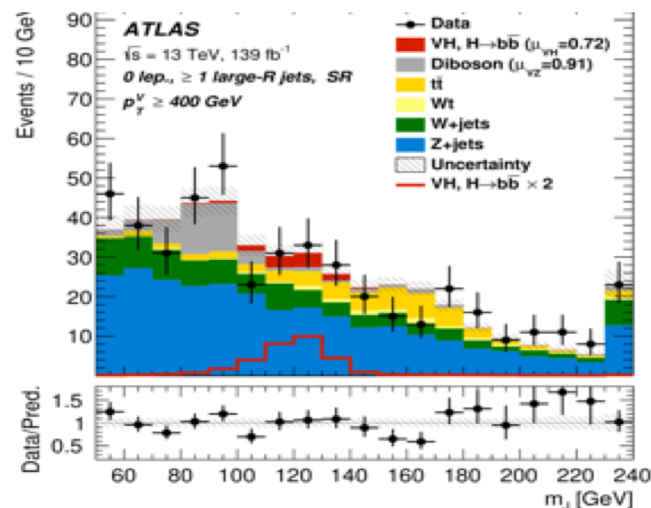
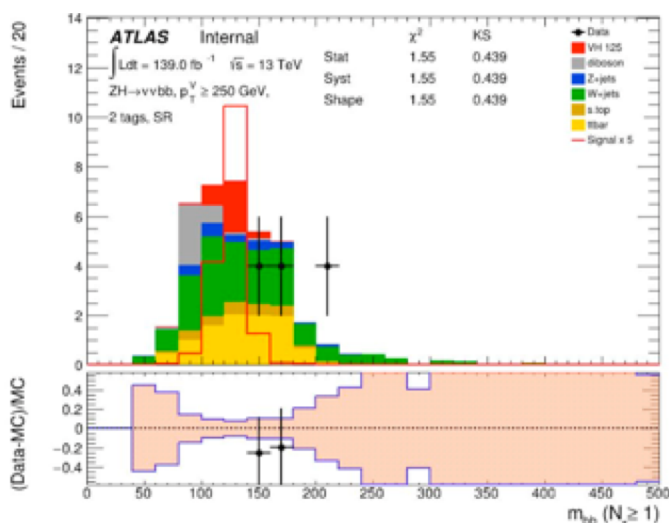
Rivelatore:

- EF Tracking per Upgrade per HL-LHC (**nuova attività**)
 - Studio degli algoritmi di clustering (applicazione di tecniche di Machine Learning al tracciamento)
 - Attività di system design e integrazione (accelerazione della ricostruzione di tracce con CPU, GPU, FPGA)
- Calorimetro adronico TileCal e Upgrade per HL-LHC
 - Manutenzione del calorimetro in presa dati e *data quality check*
 - Test di caratterizzazione dei nuovi PMT per upgrade e test con PMT multianodo
 - Studi di aging di PMT (sistema in presa dati dal 2020, integrati 500 C)
 - Progettazione nuova linea ottica per il sistema di calibrazione laser per upgrade





- Higgs $\rightarrow$ b-jets: principali sviluppatori dell'analisi VHbb nella regione ad alto p_T (boosted)
 - Tesi M.Calveti – premio migliore tesi di ATLAS 2021 / Premio Conversi 2021
 - Tesi G.Di Gregorio – premio migliore tesi di ATLAS 2022
- Higgs $\rightarrow$ b-jets: sviluppo analisi WH($\tau\nu b\bar{b}$) e ZH($\tau\tau b\bar{b}$) + sinergia con HH($\tau\tau b\bar{b}$).
 - Tesi magistrale in corso G. D'Anniballe – ottimizzazione analisi
- Higgs - combinazione di tutte le analisi del Run2
- Misura g-2 del tau – collaborazione teorici Pisa (N.Vignaroli) / studio pdf fotoni /sezioni d'urto / modello BSM
- Ricerca di particelle esotiche, candidati per dark-matter, particelle a lunga vita media



ATLAS: anagrafica preliminare per 2023

Nome	Cognome	Ruolo	FTE ATLAS + Fase2	FTE ATLAS	FTE F2
Alberto	Annovi	Ric	0.8	0.2	0.6
Vincenzo	Cavasinni	PO	0		
Giorgio	Chiarelli	DR	0.9	0.2	0.7
Gabriele	D'Anniballe	Laureando	0		
Paolo	Francavilla	Ric	0.9	0.8	0.1
Sandra	Leone	P Ric	0.9	0.2	0.7
Paolo	Mastrandrea	PostDoc	1	0.3	0.7
Marco	Piendibene	Tecnico Uni	0.1	0	0.1
Chiara	Roda	PO	0.9	0.7	0.2
Fabrizio	Scuri	P Ric	0.7	0.2	0.5
Monica	Verducci	PA	0.8	0.8	0
TOTALE			7.0	3.4	3.6

Tot. FTE richieste 2023: 7

Tot. FTE richieste 2022: 10.4

Tot. FTE ATLAS: 3.4

Tot. FTE Fase2: 3.6

Responsabilita`

Nome e Cognome	Livello	Ruolo
Alberto Annovi	L2	Responsabile nazionale ATLAS-TDAQ
Paolo Francavilla	L2	Co-convener Higgs-Combination group
Sandra Leone	L1	Chair ATLAS speakers committee
Sandra Leone	L2	Responsabile nazionale TileCal
Paolo Mastrandrea	L4	EF Tracking P2 System Design & Integration manager
Chiara Roda	L1	Chair Upgrade speakers committee
Fabrizio Scuri	L1	TileCal P2 Deputy project Leader
Fabrizio Scuri	L3	Tile P2 coordinator/responsible of: laser system electronics, on detector electronics, and PMTBlock production
Monica Verducci	L2	Convener DP-Non collision background

ATLAS: richieste ai servizi

- Richiesta di (eventuale) supporto per piccoli lavori di meccanica per il laboratorio TileCal a Pisa
- Richiesta di 0.5 m.u. per officina meccanica per componenti meccaniche del nuovo sistema di calibrazione Laser in building 175 al CERN
- Richiesta di tecnici per il lavoro da fare al CERN su TileCal-Upgrade Fase2:
 - Totale di 3 m.u. (3 periodi di 2 settimane per 2 tecnici per volta)
- Richiesta di supporto per sviluppo del prototipo per la lettura del MA-PMT per TileCal (Fabio Morsani, < 0.1FTE)
- Contributo di Marco Piendibene a EF Tracking (stimato in 0.1 FTE)