

University of Pisa - presentation
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University of Pisa

PHYSICS @ Pisa
Since GALILEO....

Galileo Galilei ([Pisa](#), [15 febbraio 1564](#) – [Arcetri](#), [8 gennaio 1642](#))

In [Pisa](#) until [1585](#)

First discovery: [pendulum](#) period is invariable



Veduta del Gabinetto degli Esperimenti
Fisici, a destra della Specola

On August 19, 1780, Alessandro Volta

inventor of the **batteries** for mobile phones traveled in Toscana,
“dove potrà entrare in discorso con que' Letterati ed osservare
esattamente i Gabinetti di Fisica Sperimentale, la struttura e il
pratico maneggio de' rispettivi Istromenti “

to report on the sperimental activity there

FIRST EXTERNAL AUDIT AND REVIEW OF PISA RESEARCH !



Enrico Fermi at the Scuola Normale Superiore di Pisa



The city is basically a University Campus: 3 Universities
Students are about 50% of the residents

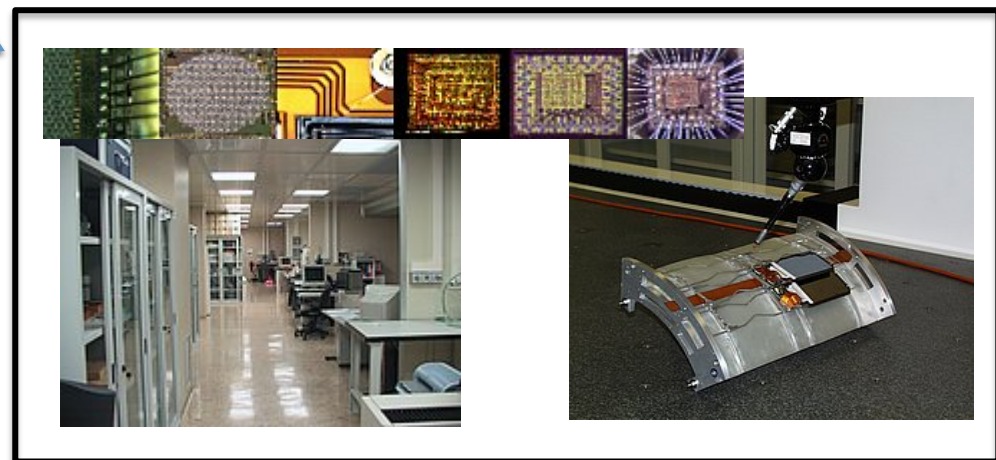
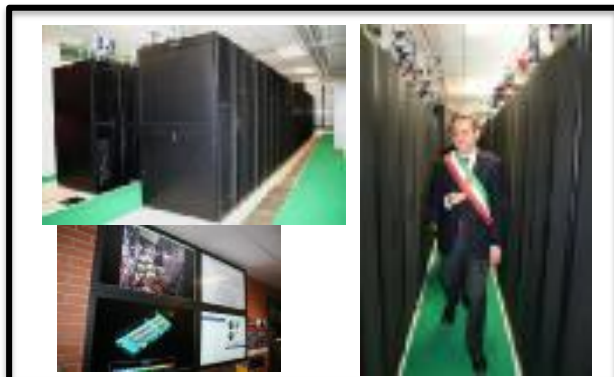
Enrico Fermi studied at University of Pisa between [1919](#) and [1923](#).
Some of us slept in his bed (but with fresh sheets).

The **Enrico Fermi Department of Physics** in Pisa is highly rated.
It has about 80 faculty members.

The University and Scuola Normale Superiore find a common structure in INFN (research center) for HEP experiments.

HEP activity is supported by

- (a) a **strong theoretical team**;
- (b) **large laboratory space** for all different activities
- (c) **high-level infrastructures for electronics service**
(designing and production/test of boards)
- (d) **mechanics service** (designing, developing, integrating
detectors and large structures),
- (e) **high-technology** (clean-rooms for silicon detectors with
all necessary machines),
- (f) **computing** (GRID facilities).



Pisa had a leading participation to into Collider experiments:

e+e- collider physics:

Aleph (CERN - LEP) - Lorenzo Foa'

BaBar (SLAC) – Marcello Giorgi

for collider physics:

CDF (Fermilab): G. Bellettini, F. Bedeschi, L. Ristori, G. Punzi

CMS (Geneve): G. Tonelli

The Tracker Inner Barrel (TIB) was designed/produced in Italy and integrated in the large Pisa infrastructures.

The Atlas group is small but had an important role in the tile calorimeter construction and has now a leading role in the FTK project (P. Giannetti Deputy Leader).

The Heavy Flavour experiments have been strongly represented both in the K (Epsi) and B (Babar) sectors: Prof. Giorgi

the neutrino sector by the Chooz and Nomad collaborations: Prof. Bemporad

the rare decay experiments by the MEG and the N64 experiments: Prof. Baldini, Mannelli

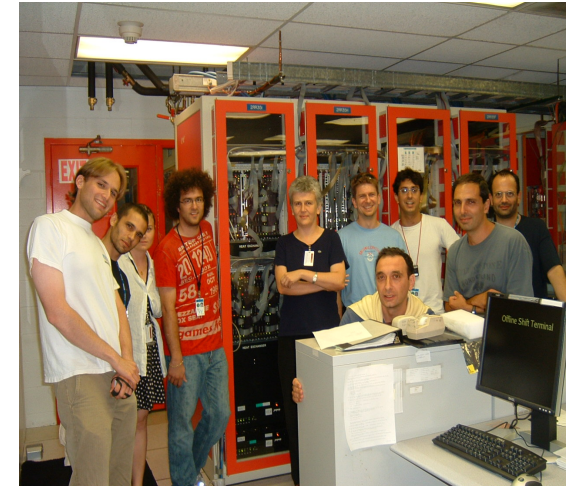
the gravitational wave physics by the VIRGO laboratory: Prof. Giazotto, Fidecaro.

A large activity is present for astroparticle physics :
Glast, AMS, Cream, Magic, Antares and Nemo.

THE UNIPI GROUP

Physicists with large experience in Hadron Collider Physics (CDF, Atlas)

in particular trigger and online/offline tracking
(SVT at CDF and FTK at Atlas, data analysis).



Prof. M. Dell'Orso Proponent of the Associative Memory
for HEP - NIM A **278**, 436 (1989)

Researcher C. Roda, coordinator of the ATLAS Pisa group

INFN Director of Research P. Giannetti: Proponent of the FTK processor for LHC experiments

Researcher S. Donati: Trigger responsible of CDF experiment

Strong technical support in the electronic field:

Engineer M. Piendibene: large experience in CDF trigger & AM system development and test.

Responsible of the AM boards in FTK

INFN Technology Researcher R. Beccherle

Engineer S. Citraro

Some publications relevant for the Group activity

"Observation of B₀s - anti-B₀s Oscillations". CDF Collaboration, Phys. Rev. Lett. 97, 242003, 2006;

A. Annovi et al., "A VLSI Processor for Fast Track Finding Based on Content Addressable Memories". IEEE Transaction on Nuclear Science, vol. 53; p. 2428, 2006

A. Bhatti et al. "The CDF level 2 calorimetric trigger upgrade". IEEE Transaction on Nuclear Science, Volume 56, Issue 3, pp 1685-1689, 2009