

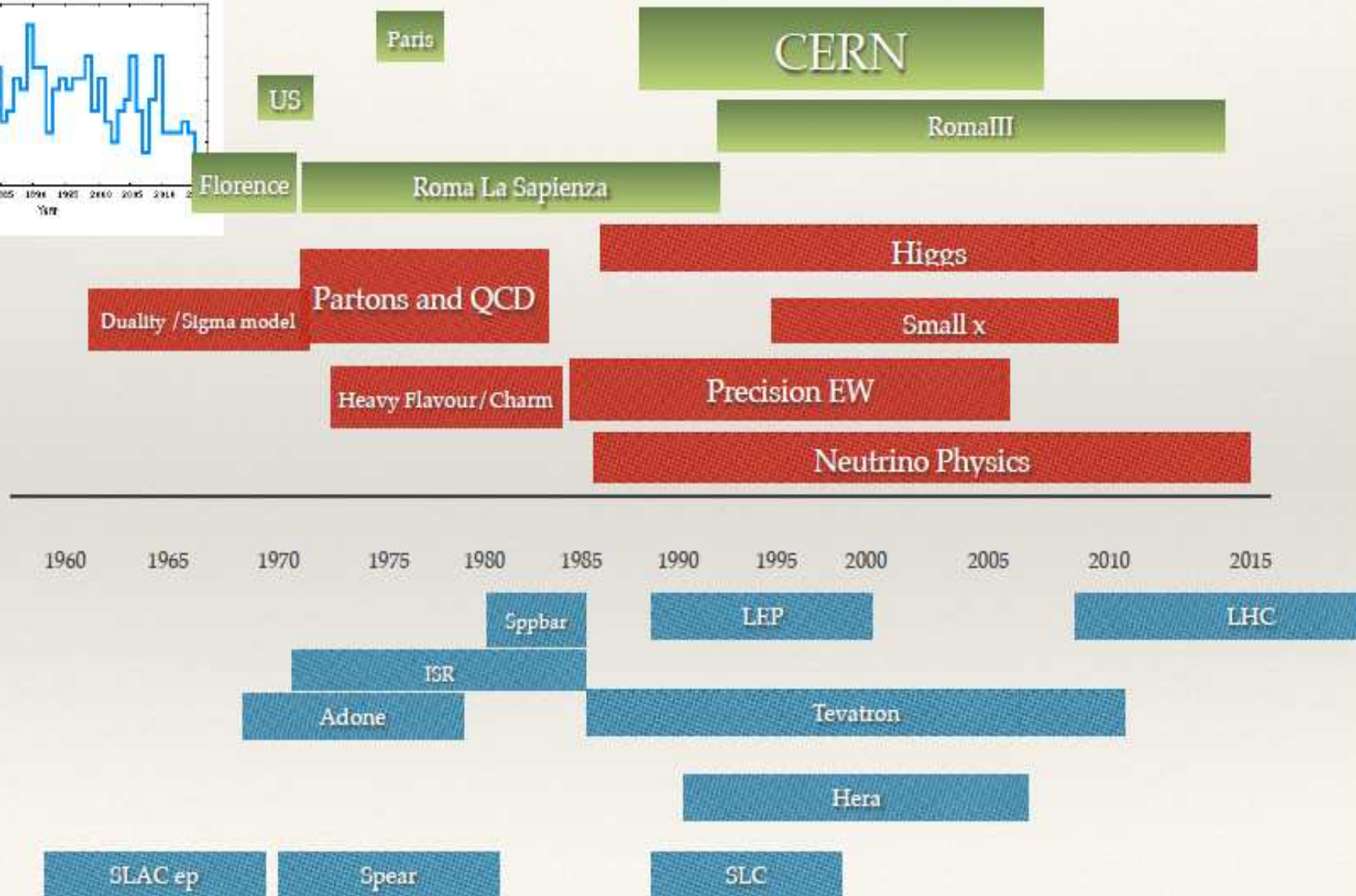
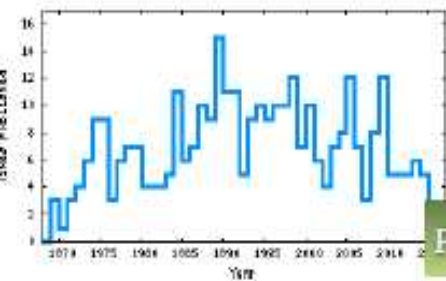
**VULCANO WORKSHOP 2016, Session in memory of Guido Altarelli,**  
**May 25, 2016**



# **Guido's contribution to the life of INFN**

Antonio Masiero

# GUIDO: half of century of physics and accelerators





With thanks to Guido Martinelli

**ROMA 'LA SAPIENZA'** early 70's – 1991

**DIRECTOR OF THE INFN ROME UNIT**  
**1985-1987**

**ROMA TRE** 1992 – 2011

**CERN TH Division** 1987 – 2006 (Director  
of the TH Division 2000 – 2004)

**Activity periods at Univ. of Florence,**  
**Rockefeller Univ., New York Univ., Ecole**  
**Normale Supérieure, Boston Univ. etc.**







## The early days of QCD (as seen from Rome)

G. ALTARELLI

*Dipartimento di Fisica "E. Amaldi", Università di Roma Tre and INFN*

*Sezione di Roma Tre - I-00146 Rome, Italy and*

*Department of Physics, Theory Unit, CERN - CH-1211 Geneva 23, Switzerland*

from the left: Mario Greco, Yogi Srivastava and Guido Altarelli in 1979

- ❖ 1972-1975 a the birth of the standard model
- ❖ La Sapienza-theorists
  - ❖ Altarelli, Buccella, Cabibbo, Gatto, Maiani, Martinelli, Parisi, Petronzio, Preparata, Testa
- ❖ LNF Frascati,
  - ❖ Greco, Etim Etim, Panchieri, Srivastava, Touschek

1. "Vacuum polarization effects of new physics on electroweak processes"  
G. Altarelli and R. Barbieri.  
10.1016/0370-2693(91)91378-9  
Phys. Lett. B 253, 161 (1991). 500+
2. "The Anomalous Gluon Contribution to Polarized Leptoproduction"  
G. Altarelli and G. G. Ross.  
10.1016/0370-2693(88)91335-4  
Phys. Lett. B 212, 391 (1988). 500+
3. "Vector Boson Production at Colliders: A Theoretical Reappraisal"  
G. Altarelli, R. K. Ellis, M. Greco and G. Martinelli.  
10.1016/0550-3213(84)90112-3  
Nucl. Phys. B 246, 12 (1984). 500+
4. "Leptonic Decay of Heavy Flavors: A Theoretical Update"  
G. Altarelli, N. Cabibbo, G. Corbo, L. Maiani and G. Martinelli.  
10.1016/0550-3213(82)90226-7  
Nucl. Phys. B 208, 365 (1982). 500+
5. "Partons in Quantum Chromodynamics"  
G. Altarelli.  
10.1016/0370-1573(82)90127-2  
Phys. Rept. 81, 1 (1982). 500+
6. "Large Perturbative Corrections to the Drell-Yan Process in QCD"  
G. Altarelli, R. K. Ellis and G. Martinelli.  
10.1016/0550-3213(79)90116-0  
Nucl. Phys. B 157, 461 (1979). 500+
7. "Asymptotic Freedom in Parton Language"  
G. Altarelli and G. Parisi.  
10.1016/0550-3213(77)90384-4  
Nucl. Phys. B 126, 298 (1977). 5000+
8. "Octet Enhancement of Nonleptonic Weak Interactions in Asymptotically Free Gauge Theories"  
G. Altarelli and L. Maiani.  
10.1016/0370-2693(74)90060-4  
Phys. Lett. B 52, 351 (1974). 500+

- ◆ Students

- ◆ Keith Ellis

- ◆ Guido Martinelli

- ◆ Barbara Mele

- ◆ Marco Ciuchini

- ◆ Roberto Franceschini

- ◆ Emilio Gabrielli

- ◆ Sandro Ambrosiano

- ◆ +many younger collaborators

**K. Ellis in recommending  
Guido's nomination for the  
Sakurai prize**

I believe that his intensely physical approach, communicated through his papers, and perhaps more importantly through his influence on students and junior collaborators, has had a profound effect on our field. I am happy to recommend the award of the Sakurai prize without reservation.



**Guido e' stato un bravo direttore, soprattutto molto giusto, capace ed equilibrato, come nel suo stile.**

**from LUCIANO MAIANI**

“Guido has been a valid, capable and very balanced director of the INFN Rome Unit - as it can be said for the whole of his activities.

At the beginning of his mandate, the local trade unions representatives were somewhat afraid because of his fame of “man of order and discipline”.

However, such fears soon dissolved and, indeed, no major critical situation with the trade unions emerged during his directorship.

I brought such favourable impression of Guido when I went to CERN; at some point, having a staff position to assign in the TH division, I proposed the Guido's name and the CERN Council didn't show the slightest hesitation in unanimously welcoming that candidature.

When I came to take the decision to close LEP, Guido was against such decision, as many others were. However, differently from many among them, Guido opposed that choice in a perfectly correct way.”



**from Speranza Falciano**

I overlapped with him as director of the Rome Unit for a short time, but I remember well that he left a **very positive impression in Rome after concluding his directorship experience.**

Just to give you an example of the wisdom and determination characterizing his directorship: there was the problem of how to distribute some economical incentives selecting the best technical and administrative personnel of the Unit. Guido proposed a clever method based on the selection of a group of employees deserving the incentive and then periodically rotating in an intelligent way that attribution. Here's an example of how **he was always lucid, transparent and determined in the managerial choices he was asked to make.**





Guido: always speaking with **clarity** and **authority** to students, to young and senior colleagues and collaborators, to broader audiences

**voglio sottolineare un'altra cosa che lo caratterizzava, ossia la sua grande chiarezza espositiva di docente e di persona di scienza che faceva sicuramente il paio con il suo modo lucido e trasparente di fare.**



The 2015 High Energy and Particle Physics Prize , for an outstanding contribution to High Energy Physics, is awarded to  
James D. Bjorken for his prediction of scaling behaviour in the structure of the proton that led to a new understanding of the strong interaction  
and to  
Guido Altarelli, Yuri L. Dokshitzer, Lev Lipatov, and Giorgio Parisi for developing a probabilistic field theory framework for the dynamics of quarks and gluons, enabling a quantitative understanding of high-energy collisions involving hadrons.

# Guido's impact on the INFN life: an Italian, an INFN **authority** for the whole community

- Enormous impact of **Guido's scientific production** on the whole international community
- Our work is certainly the fruit of a collective effort, however our community needs some (in fact, few) “**community leaders**” providing kind of reference points marking the path(s) to take
- Guido had such kind of **AUTHORITY** and undoubtedly he was identified as an Italian, an “**INFN brand**”, in fact probably the most ‘typical’ of the Italian school of physics

# Guido's impact on the INFN life:

## CERN ↔ INFN

- INFN “has” **5** laboratories where to operate: its 4 national labs **and** CERN
- Guido has given (but also received) a lot to CERN (scientific impact, constant, deep dialogue with experimentalists, leadership ...)
- Guido did not have a first **Italian, INFN life** and then a **second CERN life**: he was at the same the prototype of the INFN presence at CERN and of the CERN presence in the INFN life



# **Guido's impact on the INFN life:** **forming and shaping young generations**

- Enormous influence of Guido's work and, even more, of Guido's "style" on the young generations, in particular of the INFN ones
- Guido' constant attention to the

**INFN**  **UNIVERSITY** interplay

# Guido's impact on the INFN life:

## Guido, a theorist among the experimentalists

- Role of **theory** in the INFN life
- The dialogue **theorists – experimentalists** in the INFN life
- Guido: not a theorist “at the service” of the experimentalists, but, again the prototype of what it should mean to **work together** theorists-experimentalists → important for the **INFN community strongly rooted in the synergy theory-experiment.**

**Guido's impact on the INFN life:**

**Guido's style of doing physics**

**Clarity, going to the point ,**

**“intensely physical approach” :**

**a typical mark of the whole Guido's  
scientific carrier shaping the way of  
doing physics for theorists and  
experimentalists**

# Grazie, Guido !

