Guido : a Great Scientist.

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Summary

1) THE FIRST 25 YEARS OF GUIDO

2) FROM FLORENCE TO ROME

3) AFTER THE CHAIR IN 1980 BETWEEN ROME AND CERN.

4) CONCLUSIONS

From Elementary Schools to University

I had many occasions to see Guido in our first 20 years, since we lived in the same street, via Severano, in two adiacent buildindgs, 25 for Guido and 15 for me. In the fall 1946, our first day at the elementary school, five years later in the same class with a very good teacher of humanities, Prof.ssa Ricci, and after in the same classical liceum, Giulio Cesare. After two years of ingeneering Guido and his friend Giorgio Capon joined me in physics. The motivation of Guido was that he would become less rich, but he will be more gratified by that choice : a successful prediction !

Our Thesis on Bremhstrahlung

My elder cousin, Luciano Paoluzi, gave me the clever advice of asking the thesis to Gatto, but by telephone the issue : "Radiative Corrections to electron positron scattering" became "Radioactive Corrections to electron positron scattering" and I could not understand why I should study the book by Jauch and Rohrlich to face that problem. Luckily few months later Guido asked the thesis to Gatto, who proposed to him the same subject, and contacted me and let me know what we should do.

A Very Hard Summer

By contracting the summer hollidays from three months to one week we faced our task and, since it was not possible to compute analitically the integrals needed to evaluate the cross-section for one photon emission in electron-positron scattering, we tried to evaluate them by computer, which gave the disappointing reply of a negative (!) or a too large cross-section (10^6 barne).

Luckily Touschek with his sentence with his nice austrian accent : "Denominator small, numerator zero" lead us with an ultrarelativistic approximation for the initial and final particles, to evaluate analitically the differential cross-section in terms of the energy and the angle of the emitted photon. Our theses, presented November 26th 1963, had not only the same formula, as obvious, but a similar text with important changes, for instance istead of "therefore" in his, "then" in mine. Gatto, favourably impressed by our performance , proposed us to get a scholarship in Florence, where he had his chair.

1964 in Florence

At the beginning of 1964 Guido prepared our article to be submitted to Il Nuovo Cimento, which is quoted in the book of Landau on Quantum Field Theory, and the new of the discovery of Ω^- encouraged us to study SU(3) symmetry, which was very useful, since in that year SU(6) was proposed. In the fall of 1964 we gave seminars on SU(6), which inspired Gatto to propose a successful application to the S-wave amplitudes for the non leptonic decays of the hyperons and the attempt to extend to the axial charges the theorem, he proved with Ademollo, research in which Giuliano Preparata has been involved. Probably Gatto realized that the too active "romans" were provoking some jealousy to his collaborators, who took the degree in Florence, and, while Guido was in Rome for an operation in January 1965, took the occasion to make us collaborate with them, in fact separating us.

Taking Prizes at Erice

The period in Florence with the bright scientiphic framework created by Gatto was very useful for both of us. In 1968, solving a problem proposed by T. D. Lee on time reversal, we got a price in Erice and, since Guido was the "best student" 1965 and I in 1967, Zichichi commented "again". Guido gave me the bad new that Preparata was receiving a big credit for his works on the light-cone. Indeed it was very hard to compete with Giuliano : not only he was very clever but his enthusiasm gave him infinite energy.

From Florence to Rome

Then Gatto decided to go to Padua and continued along all his life to form young physicists and to propose them the more interesting subjects of research, they might be able to successfully face. The ”romans” came back to Rome and from the people from Florence it was seen as ”an occupation army, who went away spontaneously”.

Guido in USA, at Rome and at Paris.

After leaving Florence, Guido worked, in collaboration with Brandt and Preparata, on the production of muon pairs within the light-cone approach. Back in Rome he worked in the group lead by Cabibbo and, together with Maiani wrote an important paper on the QCD corrections to the efective non-leptonic weak hamiltonian for strange particle decays, but his masterpiece was to formulate the DGLAP equations in such a way that they might be applied by the experimentalists to describe the soft scale invariance violation in deep inelastic scattering. In 1980 we both became full professor with a comity with Maiani, who, as Preparata, got that charge four years before. His presence helped me, since he was so clever to explain to the rest of the comity the important work, I did ten years before at CERN, on the transformation between constituent to current quarks.

Two comities not equally severe

Guido remained in Rome and very soon began to spent part of his time at CERN, where he plaid a crucial role to underline the success of the standard model and later, in collaboration with Ferruccio Feruglio, wrote intriguant paper on the role of discrete symmetry to understand PMNS matrix. After 1980 we were in two different comities to establish which university teachers, on the basis of their research activity, should become associate professors. We came to this task with a different attitude : at Naples they asked me to be a dhove, since after 1968 the research activity was not their main goal. Guido thought that only deserving people should be promoted. The candidates were separated in three block of letters and the luckiest were judged by my comity with only one non promoted of fifty. The unluckiest by his comity with fifteen non promoted.

The revenge of the tachion.

With his sense of humour Guido asked us how could a person succeed to not be promoted by our comity. Indeed his production was on tachions, always faster. Luckily our victim was very clever and the second time he applied to General (rather than Theoretical) Physics with comities consisting of experimentalists, who had short time to do better than counting the number of papers and promoted him. Of course his complete revenge came many years after when, grace to the strong economical effort of the italian government in digging a tunnel between CERN and Gran Sasso, neutrinos resulted faster than photons.

Guido at my 70 Years Festival

In March 2011, for my 70 years birthday, my coleagues at Naples, so happy that I was leaving, organized a festival, inviting my former collaborators abroad. Guido was so kind to come and in the recollection of the afternoon he said he was very happy to come in my house in via Severano, since for him it was the earth of freedhom, since my mother, to please her very spoilt only son, allowed us to do what we want, included foot-ball matches in the corridor. His mother was not so permissive, and I think that, while has been pleasant to do not undergo any authority, the strong will of Guido, which favoured his achievements, depended on his Sparta-like education.

Conclusions

We are all very sad that Guido is no more with us to promote the research, to give his wonderful lectures and to make us enjoy his sense of humour.

Our consolation is that he realized what he wanted, being a great scientist, whose results will remain in the book of physics, and a very good father, proud of his clever and beautiful four children, to which he gave a very good example with his life and his personality.