Bologna 31/8/09

SHORT CURRICULUM VITAE OF GIORGIO-MARIA GIACOMELLI

Giorgio-Maria Giacomelli (GG) was born in Cagli (Pesaro) Italy on 30/5/1931. He received the Laurea Degree in Physics from the University of Bologna in 1954, the PhD in Physics from the University of Rochester (NY, USA) in 1958, the Libera Docenza in Fisica Generale (1962), full professorship in 1971 at the University of Padua (It), in 1974 in Bologna (It).

He did scientific research and gave university courses in several Italian and foreign Universities and Laboratories, among which the University of Rochester (NY, USA), CERN (Geneva, CH), Harwell Lab. (UK), Brookhaven Lab. (NY, USA), Institute of High Energy Phys. (Serpukhov, Russia), Fermilab (Batavia, IL, USA), the Universities of Padua, Bologna, Kyoto (Jp), of California at Berkeley and Riverside (USA). GG visited Universities and Laboratories in developing countries.

He gave regular courses on "Electromagnetism and optics", "Elementary Particles", "Nuclear and Subnuclear Astrophysics" and others. He received the highest student appreciation for the course "Nuclear and Subnuclear Astrophysics" for 2002-2003.

His scientific field is Elementary Particles (Experimental). He is (co)author of >700 publications in scientific journals and >400 reports and conference proceedings. He participated actively in all phases of the experiments, from the project and implementation to data taking and physics analyses. Since the late '60s he was team leader.

Among his most important results may be mentioned:

1. Total and elastic hadron cross section measurements from few MeV to 1.8 TeV: determination of low energy parameters of π-N scattering (Rochester 1956-60), discovery of ~10 new structures/resonances (Brookhaven 1966-70), discovery of rising σ_{tot} (K^+p) (Serpukhov 1970-71), σ_{tot} $\pi^{\pm}p$ and σ_{tot} $K^- p$ (Fermilab 1974-80) and σ_{tot} $\bar{p}p$ (Fermilab 1988-90).
2. Study of hadron production in pp, pN, $\bar{p}p$ collisions from GeV to 1.8 TeV (CERN-ISR, Serpukhov, Fermilab, 1968-84): determination of simple scaling laws (in 1981 GG received the Attestation N. 228 from the USSR) and of the main features of hadron production; study of high p_t phenomena which lead to the 4-jet structure in high-p_t hadron collisions.
3. Detection of $\bar{d}$, ${}^3\bar{H}$, ${}^3\bar{H}e$ in an extremely intense RF-separated beam at the CERN SPS (1977-78).
4. Detailed study in a series of bubble chamber measurements of the K^+N collisions between 0.6 and 2 GeV (1964-70) which indicated the possible resonant behaviour of at least one partial wave of KN, $I = 0$.
5. Study of (anti)neutrino-deuteron collisions in the BEBC bubble chamber, which gave informations on the neutral and charged current interactions of muon neutrinos on neutrons (CERN 1980-88).
6. The Study of e^+e^- collisions at 91-208 GeV (OPAL experiment at LEP, 1983-2004) yielded important results on the number of neutrino families (three), the proof of the variation of α_s and α_{EM} with Q^2, precise determinations of the electroweak parameters, the determination below threshold of the mass of the t quark, proof of the existence of the triple bosonic vertex ZW^+W^-, a precise determination of the $W^{\pm}$ mass, stringent limits on the mass of the Higgs boson and on new phenomena and new particles. GG was always a member of the OPAL leading committees.
7. The MACRO experiment at Gran Sasso (1984-2004) participated in the 1998 discovery of atmospheric muon neutrino oscillations, yielded the best directs limits on magnetic monopoles, MM catalysis of nucleon decay, nuclearites, etc., studied the composition of high energy cosmic rays in coincidence with the EASTOP Array on top of Gran S., the analysis of the seasonal, solar and sidereal variations of the μ rate underground. GG was co-spokesman of the experiment.
8. GG contributed to detector design, construction and implementation, including the OPAL hadron calorimeter and luminometer, the development and use of the CR39 nuclear track detector of MACRO. He participated in applied physics studies (solar panels, radon contamination, detector development and calibration).

GG completed the high altitude experiment SLIM and started work in the OPERA experiment in the CERN-Gran Sasso long baseline ν beam which had initial tests in 2006-2008, in the ANTARES neutrino telescope and at CERN (GG is/was a member of the Publication Committee of OPERA, ANTARES, NEMO).

GG wrote review papers (>11), gave plenary, review and invited talks (>100) at National and International Conferences. He has given courses at >40 Summer Schools, >400 seminars and colloquia in many Universities and Laboratories, organized >20 Workshops, Conferences, Summer Schools and Exhibits. He has written a textbook and a problem book on Electromagnetism and Optics, 1992-94, notes on Particle Physics (1998-2002) and Nuclear Physics (2002) [which became a book: S. Braibant, G. Giacomelli, M. Spurio, Particelle e Interazioni Fondamentali, Springer, 2009], many papers, posters and a book (From quarks to the Big Bang) on scientific popular subjects. He supervised 114 Laurea Theses, 30 PhD Theses, 9 of Scuola di Perfezionamento, 7 Theses de Doctorat d'Etat (Univ Oujda, Maroc) and was external adviser for 24 PhD theses.

GG received prizes from the Italian Physical Society, the University of Bologna and from the A. Della Riccia Foundation. He is "Marchigiano of the year 2006". In 1981 the Institute for Scientific Information (ISI) listed GG in the "1000 Contemporary Scientists Most-Cited in 1969-78". He is presently in the Highly Cited list of ISI.

GG was Director of the Institute of Physics, of the Department of Physics (1975-88) and President of the Laurea in Physics Committee of the University of Bologna. He was a member of many national and international scientific committees (SPSC, LEPC and ECFA at CERN, HEP at Fermilab, of INFN, of the ENI foundation, CTS of ENEA, bioethics of CNR, the Galvani Committee), member of organizing and advisory committees of conferences, workshops, summer schools; He was director of several summer schools.

Presently he is Emeritus Professor of Physics at the University of Bologna, collaborator of INFN and CERN, Fellow of the American Physical Society, Socio Benemerito of the Italian Physical Society, member of the European Physical Society, of the Accademia delle Scienze di Bologna, of the New York Academy of Sciences, the Accademia Teatina. He is one of the Editors of the Journal "Astroparticle Physics" and Chairman of the web popularizing Committee of the University of Bologna (www.scienzagiovane.unibo.it). Homesite : http://www.df.unibo.it/docenti/giacomelli/curriculum.html

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