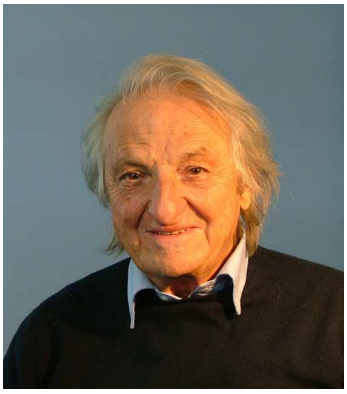

ENZO BEROLINI

CURRICULUM VITAE – A BRIEF SUMMARY

Personal Data
Born in Verona (Italy) May 4, 1932

Working Address
Fondazione Clément Fillietroz – Onlus
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Education
1951: *Baccalauréat* (Verona)
1958: *Doctorate in Electrical Engineering* (University of Padova. I)
1959: *Diploma in Applied Nuclear Physics* (University of Padova, I)

Academic Titles and Teaching Experience
1964-1969: *Assistant Professor* Department of Electrical and Electronic Engineering , *University of Roma, I (**Electrical and Electronic Measurements**)*
1969-1988: Visiting Professor, University of California (USA),
Davis Campus *(**Advanced Systems for Energy Conversion***), by means of a *Regent's Professorship* of the University.
1988 (from): *Adjunct Professor*' Università di California (USA),
Davis Campus and Santa Barbara Campus (***Energy Systems and Alternative Energy Sources; Pulsed Power Supplies, Engineering of a Fusion Reactor)***

During the same period, I have given lectures and seminars in other Universities (in Europe: Padova, Napoli, Oxford, Newcastle, Hall, Swansea, London; in the USA:

M.I.T., Princeton, Wisconsin, Stanford, UCLA, Tallahassee; in Japan: Tokyo; in Cina: Hefei, Beijing; in Russia, Moscow, Saint Petersbourgh).

Member of Scientific and Technical Societis

- Fellow of the Institution of Electrical and Electronic Engineers (IEEE, UK)
- European Physics Society (EFS)
- Institution of Engineers (Valle d'Aosta, I)

Technical and Scientific Activities

1959-62 : CERN, Geneva (CH) – **Construction and operation of an Hydrogen Bubble Chamber**, to visualize the transit of sub-nuclear particles and the study of their interactions. Experiments in particle physics, using the Bubble Chamber

1962-69 : CNEN (now ENEA), Frascati (I)
Construction and operation of a 'Theta Pinch' Machine, to perform plasma physics experiments, aiming at thermonuclear fusion
Construction and Operation of a closed-cycle MHD machine, for the study of direct thermal energy conversion into electrical energy

1969-70 : **Regent's Professor at the University of California**(Davis Campus, USA), in 'leave of absence' from CNEN. This has been the start of my teaching at the University of California, due to continue in the following years, by means of the leave of absence scheme (see Academic Tiles, above)

1970-73 : CNEN di Frascati (IT)
Director of the MHD Laboratory. (Physics and Engineering Experiments with the MHD Machine
Leader del 'FINTOR Study Group', aiming at a reference design of a fusion Reactor (nuclear burning of hydrogen for production of electric energy)

1973-78 : **Deputy Manager of the JET Project** (Joint European Torus), of the European Union, Abingdon (UK), for the experimental study of Physics and Engineering of a Fusion Reactor

1978-85 : **Director of the Power Supply and Control Division** of JET Joint Undertaking

1985-92 : **Director of the Magnet, Power Supply and Control Division** and **Deputy Director of the Engineering Department** of JET Joint Undertaking.

1992-1997 : **Technical Director** of JET Joint Undertaking, therefore responsible of all technical sectors, covering any engineering field in the Project. Moreover, responsible for maintenance, development and operation of the machine

1997-1999 : **Technical and Scientific Adviser** to **the Director** of the JET Joint Undertaking (having reached the age of 65,I had to leave any managerial responsibility)

1999-2005 : **Technical and Scientific Adviser** to the Director of the UKAEA (United Kingdom Atomic Energy Authority) Fusion Programme Laboratories
(sited near the premises of the JET Joint Undertaking, and integrated into the JET research programme)

1999-2007 : **Consultant at KBSI (Korean Basic Science Institute)** for the design and construction of KSTAR, an experimental device for research in the field of fusion energy (Dajeon, South Korea)

2006 - today : **Director of Fondazione Clément Fillietroz**, managing the Astronomical Observatory and the Planetarium of the Autonomous Region 'Valle d'Aosta'

Other recent duties

- *Member of the SOFT International Organizing Committee* (Symposium of
- Fusion Technology)
- *Member of the Overview Board of the ATLAS Project*, the main detector of the new acceleratorof LHC (Large Hadron Collider, CERN, Geneva, CH)
- *Member of the Evaluation Commitee of Project 242* of ASI (Agenzia Spaziale
- Italiana), aiming at preliminary experiments of a nuclear engine for a possible human mission on the planet Mars (proposed by the Nobel Prize winner Carlo Rubbia)
- *Evaluator of applications for founding Research Proposals submitted to the*
- Framework Programmes of the European Community for research, technological development and demonstration activities
- *Member of the Regional Committee for Communication* of Valle d'Aosta (Co.Re.Com), 2000-2005

Publications

I am author or co-author of more than 120 scientific publications in Physics and in Engineering in International Journals and in Proceedings of International Conferences, in the following fields of research (only few of such publications are reported as examples):

- Particle Physics
  - B. Baldoni, E. Bertolini et al. "Proton-proton Interaction at 560 Mev", Nuovo Cimento, Vol. 26 1962.

- E. Bertolini, C. Rubbia et al: “Determination of the μ-Total Capture Rate in Liquid Hydrogen”, Proc. of the Int. Conf. on High Energy Physics Conferenze, Geneva, 1962.

- Electric Power Generation by MHD Energy Conversion Systems
  - • E. Bertolini, I. Mc Nab, R. Toschi: “Relaxatin Phenomena in MPD Generators”, Proc. Int. Symp. On MHD Electrical Power Generation, Salzburg, 1966, Vol. 1.
  - • E. Bertolini , M. Gasparotto, P. Gay, M.A. Hoffman, R. Toschi: “Experimental Analysis of an MHD Close Cycle Generator with Quasi-Equilibrium Plasma”, AIAA Journal 6, 1968.
  - • L. Anzidei, E. Bertolini, M. Gasparotto, P. Gay, R. Toschi: “Influence on Closed Cycle Experimental Generator Performances on Leakage Resistances and Channel Technology”. Proc. of Vth Int. Conf. on MHD Electrical Power Generation, Munich, 1971, Vol. IV

- Plasma Physics
  - E. Bertolini, B. Brunelli, R. Gratton, S.E. Segre: “Breakdown in a Theta Pinch Apparatus”, Proc. VI Int. Conf. on Ionisation Phenomena in Gases, Paris, 1963.

- Fusion Energy and Devices
  - • The Fintor Group (E. Bertolini et al): “Design of a Minimum Size Toroidal DT Experimental Reactor (Fintor), Proceedings of the 5th IAEA Conference on Plasma Physics and Controlled Nuclear Fusion Research, Tokyo (Japan) (1974).
  - • E. Bertolini, F. Englemann, M.A. Hoffman, A. Taroni: “Plasma Power Balance Models for Self-sustained Tokamak Reactors”, Nuclear Fusion, October 1977.
  - • E. Bertolini: “The JET Project: Progress in construction and Management” (Invited Paper) Proc. of 3rd ANS Topical Meeting on the Technology of Controlled Nuclear Fusion, Santa Fe, May 1978.
  - • E. Bertolini, P.L. Mondino, P. Noll: “The JET Magnet Power Supplies and Plasma Control System”, Fusion Technology Journal, January, 1987, Vol.11, No. 1.
  - • R. Albanese, E. Bertolini, S. Bobbio, R. Martone, G. Miano, P. Noll, “Analysis of Vertical Instability in the JET Experiment”, Proc. of 15th SOFT, Utrech, September 1988.

- o • E. Bertolini, M. Huguet and the JRT Team: “JET Progress Towards D-T Operation”, Proc. of 8th Topical Meeting on the Technology of Fusion Energy, Salt Lake City, UTAH, October 9-13, 1988.
- o • E. Bertolini: “JET Design, Construction and Performance”, Journal of the British Nuclear Energy Society”, Vol. 29, No. 1, February 1990.
- o • E. Bertolini (for the JET Team): “Impact of JET Experimental Results and Engineering Development on the Definition of the ITER Design Concept”, Fusion Engineering and Design, Vol. 27 (1995).

- Astronomy and Astrophysics
  - o Pellissier, Paolo; Bernagozzi, Andrea; Bertolini, Enzo; Calcidese, Paolo; Dondeynaz, Patrizia; Soldi, Matteo “The Planetarium of Lignan and the Astronomical Observatory of the Autonomous Region of the Aosta Valley: a professional education and research centre in the Italian Alps”, scientific poster presented at the 20th Biennial Conference of the International Planetarium Society (IPS) “Back to Alexandria, the Cradle of Astronomy” 26–30 June 2010l, Alexandria, Egypt (http://www.bibalex.org/IPS2010/home/home.aspx)
  - o Giacobbe, Paolo; Damasso, Mario; Calcidese, Paolo; Bernagozzi, Andrea; Bertolini, Enzo; Lattanzi, Mario; Smart, Richard; Sozzetti, Alessandro “A pilot study for a transiting planet search around M dwarfs: Progress Report (II)”, scientific poster presented at the scientific meeting “When Darwin meets Copernicus. 3rd Workshop of the Italian Astrobiology Society”, 26-28 May 2010, Duino-Aurisina-TS, Italy (http://adlibitum.oats.inaf.it/astrobiots10/)

Final considerations

As it appears above, my **working activity**, has been mostly dedicated to the design and construction of large physics experimental devices, and to scientific and technological research using such devices. Therefore my publications are evenly distributed between Physics and Engineering.

Since these machines had, through the years, increased dimensions and costs, to end up with the JET Project (overall cost, at today money value, of about 2 billions €), I have been responsible of a large number of industrial contracts, with European Industrial Firms, each one of values up and above 10 millions €. These contracts encompasses, practically, all fields in engineering.

Concerning my **teaching activity**, this took place mostly in the United States (University of California), where I was given the chance to organize my courses in a manner compatible with my research activities.

September 2010