Sergio Bertolucci - Curriculum Vitae – June 2025

Personal Information

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EDUCATION

Degree in Physics summa cum laude at the University of Pisa

Most relevant professional experience

CURRENT POSITION(S)

April 2022 – present: Co-Spokesperson of DUNE

November 2020 – present: Senior Associate of INFN, National Coordinator of the Italian DUNE program

PREVIOUS POSITIONS

- September 2016 – October 2020: Extra-Ordinary Professor, Department of Physics and Astronomy University of Bologna, Italy, National Coordinator of the DUNE program.
- January 2009 - December 2015: Director of Research and Scientific Computing at CERN
- 2005-2008: Vice President of the National Institute for Nuclear Physics (INFN), Italy
- 2002-2004: Director of the Laboratori Nazionali di Frascati (LNF), Italy
- 2000-2002: Director of the Accelerator Division at LNF
- 1994-2008: Director of Research at INFN
- 1985-1993: Senior researcher at LNF

- 1978-1984: Research staff at LNF
- 1976-1978: Post-doc at DESY in Hamburg, Germany

FELLOWSHIPS, AWARDS, ACADEMY MEMBERSHIPS AND HONORARY DEGREES

- 2012 European Physical Society (EPS) Edison Volta Prize (with Rolf Heuer and Steve Myers) (https://www.eps.org/page/distinction_prize_ev)
- Co-recipient (with CERN) of the 2013 Prince of the Asturias Prize
- EPS Honorary Member
- American Physical Society (APS) Fellow
- Grand Officer of the Order of Merit, the second highest ranking order of knighthood awarded by the Italian Republic.
- Benedictine Member of the Academy of Sciences of Bologna Institute, one of the oldest Italian Academies (1690)

MEMBERSHIPS IN PANELS, BOARDS, INSTITUTIONAL RESPONSIBILITIES

- To-date: Chairman of the Independent Scientific Committee of the ATTRACT program (EU)
- 2017-2022: President of the Strategic Committee of BI-REX, a public-private consortium led by the University of Bologna on Industry 4.0
- 2004- 2007: Chair of the LHC Committee (LHCC) of CERN
- 2004-2007, 2009-2015: member of the CERN Research Board
- 2004-2007, 2009-2015: member of the Scientific Policy Committee, CERN
- 2002-2015: member of the Restricted Panel of the European Committee for Future Accelerators (RECFA)
- 2012-2015: leader of the Task Force Groups appointed by the Council for assessing the accession criteria of the applicant countries of Israel, Cyprus, Serbia, Turkey, Slovenia, Ukraine, Brazil, Russia and Pakistan (CERN)
- 2000-2002: leader of the commissioning of the DAFNE accelerator at LNF, Italy
- Italian Delegate to the Program Committee for the Research Infrastructures of the EU FP6
- 2000- to date: member and/or chair of international panels among which are DESY PRC (D), ESFRI (EU), ILCSC (INT), CERN Council Strategy Group, SLAC (USA), Stefan Meyr Institute (A), JPARC (JP), FAIR (D), Helmoltz Gesellschaft (D), LMU (D), ETH (CH), KEK (JP), CEA-IRFU(F), Israel Academy of Science, Kurchatov Institute (RU), Canadian Innovation Foundation, LIP (Portugal), IFAE and IGFAE (Spain), Nomaten Center of Excellence (PL), LBNF-SPAC (USA), Oxford Particle Physics (GB), CAPP (KOR), BNL (USA)

- Evaluator of ERC proposals and interviewed candidate for the ERC Presidency in 2021.
- September 2015 - December 2017: President of the Commissione Grandi Rischi (Extreme Risks Committee) of the Italian Civil Protection, Italy

Research interests and experience

Prof. Bertolucci has been/is working in the field of experimental Particle Physics at DESY in Hamburg, at Fermi National Laboratory in Chicago, at the Laboratori Nazionali di Frascati (LNF) of the Istituto Nazionale di Fisica Nucleare (INFN) and CERN.

He has held key roles in the design, construction and physics exploitation of the CDF, KLOE, VIP, SBN and DUNE experiments.

Among the most outstanding scientific achievements obtained by these experiments is the **discovery of the top quark**, the most precise determination of the **quark mixing angle V_{us}**, the measurement of **the hadronic contribution to the muon anomalous magnetic moment**, the measurement of the **proton-antiproton elastic, inelastic, diffractive and total cross-section at 1.8 TeV** and the most sensitive upper limit for the **violation of Pauli Exclusion Principle for electrons**.

He has **developed innovative instrumentation**, such as the CDF hadron calorimeter and the KLOE scintillating fibre electromagnetic calorimeter, which still holds cutting edge performances. He has also led the commissioning of the DAFNE accelerator, allowing it to reach record performances.

He has been **Director of Research and Scientific Computing at CERN** from January 2009 till December 2015. During his mandate he was one of the key actors in the design and implementation of the strategy **which resulted in the discovery of the Higgs particle in 2012**.

In parallel he promoted a lively and diverse scientific program, to avoid the risk that the flagship LHC program could overwhelm other lines of fundamental research, making the community too monochromatic.

Examples of this effort are:

- the construction of an **Extra Low ENergy Antiproton deceleration ring (ELENA)**, which boosts the production of antimatter atoms by almost two order of magnitude, allowing the feasibility of a wide program of investigations with unprecedented precision.
- the upgrade in energy and intensity of the radioactive ion facility **ISOLDE (HIE-ISOLDE)**, making it the only facility in the world capable of accelerating medium to heavy radioactive isotopes in this energy range widening its research reach in most aspects of nuclear structure and nuclear astrophysics;
- the **NA62 experiment** for the study of rare kaon decays, as a tool for detecting signals of physics beyond the Standard Model
- the construction of a large facility (**neutrino Platform**), which proved essential to enable the onset of a coherent participation of Europe to the global neutrino program currently underway in the USA and Japan;
- the launch of a wide program of **translational medicine**, connecting CERN and its technologies to the wide community of biomedical research.

Currently, his main research interests are in neutrino physics and in Quantum Mechanics.

To this end, **he is coordinating the Italian effort on the neutrino program in the USA**, which enjoys

a steady growth of the national community (currently more than 140 members) with scientists coming from Universities and INFN groups in Bologna, Ferrara, Genova, Milano, Milano Bicocca, Lecce, Laboratori Nazionali di Frascati, Laboratori Nazionali del Sud, Napoli, Padova, Pisa, Roma Sapienza. He is also continuing his participation **in the VIP-II experiment**, improving the limits on the violation of the Pauli Exclusion Principle and investigating the mechanism of the collapse of the Q.M. wavefunction.

As a science manager, he has been **one of the key proponents of the CERN geographical and scientific enlargement**, which was approved by the Council in 2010. Consequently, he led the visits of the Task Force Groups appointed by the Council for assessing the accession criteria of the applicant countries of Israel, Cyprus, Serbia, Turkey, Slovenia, Ukraine, Brazil, Russia and Pakistan.

During his mandate at CERN, he promoted the consolidation of the **European Research Area**, by strengthening the collaboration of CERN with the EU Commission.

He accelerated the globalization of the Particle Physics Strategy, by launching the flagship program on neutrino in the USA (LBNF-DUNE), which for the first time sees the adoption in the USA of a flagship program run under the CERN model (infrastructures held by the host institution, experiments owned by an international community), enlarging the scientific scope of CERN beyond the Geneva laboratory.

He started at CERN a wide program to connect Open Science to Open Innovation, which includes the creation of **IdeaSquare** a hub for addressing societal challenges and train new generations in future-oriented and sustainable perspective and the launch of a EU funded co-innovation program (**ATTRACT**) currently successfully underway. The ATTRACT program is being considered by the EU Commission as a promising tool for the newly established European Innovation Council.

He has started in Bologna a similar structure as the CERN IdeaSquare, named **Oper.space** establishing the first Italian node of the Design Factories Global Network.

S. Bertolucci is author/co-author of 516 citeable papers (see link below), with a global h-index of 111 and 61,794 citations (INSPIRE, June 2025).

His publications and other significant information are available at:

https://inspirehep.net/literature?sort=mostcited&size=25&page=1&q=f%20a%20bertolucci%2C%20s&ui-citation-summary=true

Bologna, June 2025

Sergio Bertolucci

