CURRICULUM VITAE PROF. MARTA CALVI

ACADEMIC POSITION

- Since 2-12-2016 Full Professor of Experimental Physics of Fundamental Interactions at the University of Milano-Bicocca, Department of Physics.
- 2013-2016 Professor "straordinario" of Experimental Physics of Fundamental Interactions.
- 2000-2013 Associate Professor at the University of Milano-Bicocca.
- 1990-2000 Researcher at the University of Milano.
- 1990 PhD in Physics, University of Milano.

ACADEMIC RESPONSIBILITIES

- Since 2000 teaching Laboratory of Physics I (Bachelor in Physics).
- Since 2012 teaching Particle Physics III (Flavour Physics) (Master in Physics).
- Since 2016 coordinator of the PhD in Physics and Astronomy OF the University of Milano-Bicocca.
- 2003-2016 Member of the Teaching Board of the PhD in Physics and Astronomy.
- 2016 Member of the examination board that assign the Post-Doc fellowships.
- 2014 President of the examination board that assign the PhD fellowships.
- Since 2014 Member of the Executive Board of the Physics Department.
- 2014-2018 Member of the committee that distributes University funds (FA, Department part)
- 2006-2015 Responsible for the Didactic Laboratories of the Physics Department for the Bachelor and Master Courses in Physics.
- 2013-2016 Responsible for the quality certification of the Bachelor in Physics.
- I have been member of the evaluation board for the recruitment of professors and researchers in the Universities of Genova, Roma La Sapienza, Milano Bicocca, Pisa, Insubria, Napoli Federico II and Cagliari.
- I have been a member of the Jury for PhD Diploma in the Universities of Barcelona, Ferrara, Lausanne (EPFL), Marseille, Melbourne and Valencia.
- I have been the supervisor of more than 20 master and bachelor students and of three PhD students.

RESEARCH RESPONSIBILITIES

- Since 2014 Leader of the LHCb group of Milano Bicocca.
- Since 2014 member of the LHCb Collaboration Board.
- Since 2017 member of the Membership Committee of LHCb.
- 2016 and 2017 member of the LHCb PhD Thesis Awards selection committee.
- 2013 Chair of the LHCb Speakers Bureau (organizing all presentations of LHCb results at International Conferences, more than 300 talks in the year).

- 2012 Member of the LHCb Speakers Bureau.
- 2004-2011 Member of the LHCb "Physics Planning Group" (panel for the planning of Physics measurements of the experiment).
- 2009-2011 Convener of the LHCb "CP measurement Working Group".
- 2004-2008 Convener of the LHCb "Flavour Tagging, Time-Dependent and Oscillations Measurements Working Group".
- 1995-2000 Convener of the DELPHI Working Group on "Flavour Physics with inclusive leptons" and on "B decays", and Member of the 4 LEP experiments "V_{cb} Working Group".
- 1992-1997 Convener of the DELPHI Working Group on "Z^0 lineshape with e^+e^-" and member of the 4 LEP experiments "Electroweak Working Group".
- 2006-2008 PI of PRIN project "Study of advanced techniques for photodetection for Cherenkov Detectors coupled to innovations in applications of aerogel"

REASERCH ACTIVITIES

1999-today LHCb experiment at LHC pp collider (CERN)

My current research activity is in Flavour Physics. I am a member of the LHCb Collaboration since 1999 and since 2014 I am the leader of the Milano-Bicocca LHCb group.
LHCb is a Collaboration of 72 universities and laboratories of Europe, America and Asia. The main goals of the experiment are tests of the Standard Model (SM) of Particle Physics and searches for indirect evidence of Physics beyond the SM.

Since the first data-taking of the experiment, I am personally involved in several analyses providing constraints on the SM parameters in the B mesons sector and I am coordinating different Working Groups of the Collaboration. Recent examples are the measurement of the CP parameters in $B \rightarrow DD$ decays, the measurement of the oscillation frequency of B^0-B^0bar mixing with $B^0 \rightarrow D^{(*)}\mu\nu X$ decays, the measurements of sin 2β from $B^0 \rightarrow J/\psi K_S$ decays and of the CP violating phase of B_s-$B_s$bar mixing with $B_s \rightarrow J/\psi KK$ decays. The B^0 and B_s mixing measurements are currently the world's best. Flavour tagging techniques are key tools to get the best sensitivity in CP time dependent at LHCb, I was the driving force in the development of new algorithms that exploit properties of decay and hadronization of the b hadrons and coordinated the collaboration efforts.

I promoted the first measurement at a hadron collider of the Lepton Flavour Violating $\tau \rightarrow \mu\mu\mu$ decay and I am now working on tests of Lepton Flavour Universality with the measurement of the ratio of branching fractions of B^0 meson semileptonic decay to tauonic or muonic final states. The recent observation of deviations with respect to the SM predictions make these studies a new window to Physics beyond the SM.

1989-2005 DELPHI experiment at LEP e+e- collider (CERN)

DELPHI was one of the four experiments at the e^+e^- LEP collider that performed a huge program of electroweak and hadronic Physics, taking data at center-of-mass energies close to the Z0 mass and above, up to 200 GeV.

During my participation to the DELPHI Collaboration, I worked in electroweak Physics coordinating efforts and giving personal contributions to the measurement of the Z^0 lineshape

parameters and asymmetries in the e^+e^- decay channel, the measurement of the W^+W^- production cross section and of the W mass. I was the author of measurements of the Z^0 decay width in b-bbar and forward-backwards b-bbar asymmetry. I gave relevant contributions in flavour physics, measuring the integrated B0-B0bar mixing probability, the inclusive semileptonic branching fraction of b hadrons, the spectral moments of semileptonic B decays and the branching fraction of $B \rightarrow D^{(*)} \mu \nu X$. These measurements have provided a precise determination of the $|V_{cb}|$ element of the CKM matrix.

Detectors for High Energy Physics

I contributed to the design and construction of the RICH (Ring Imaging Cherenkov) detector of LHCb, performing laboratory studies and test-beam measurements for the characterization of the aerogel radiator and the photodetectors (MaPMT and HPD). I was the PI of a PRIN project on "Study of advanced techniques for the detection of Cherenkov photons and innovative applications of aerogel".

I am now participating in the LHCb Upgrade project of the RICH detector that foresees new MaPMT detectors with fast readout electronics developed by the Milano Bicocca group. For the DELPHI experiment, I participated in performance studies, optimization and construction of the electromagnetic calorimeter HPC (High-density Projection Chamber), to the detector monitoring and to the energy calibration.

Publications in international Journals

With the LHCb Collaboration, I published more than 400 papers in international journals, with peer review.With the DELPHI Collaboration, I published more than 300 papers in international journals, with peer review.
I am also the author of about 20 papers on detector studies published in international journals, with peer review.
Number of publications=788, total citations= 20801, h-index=60 (Source Scopus, Author ID: 8451153600) list available at
https://www.scopus.com/authid/detail.uri?authorId=8451153600&origin=AuthorEval

Conference Talks and Seminars of the last 5 years

- "Lepton flavour universality tests at LHCb" Presented at Le Rencontres de Physique de la Vallee d'Aoste 2018, La Thuile, Italy 25 February-2 March 2018.
- "B anomalies at LHCb", Presented at the Workshop on Flavour changing and conserving processes, FCCP2017, Capri, 7-9-2017.
- "Mixing-induced CP violation in Bd decays" Presented at the 9th International Workshop on the CKM Unitarity Triangle (CKM2016)" TIFR Mumbai, India 28 Nov-2 Dec 2016.
- "$B^0 \rightarrow D^* \tau \nu$ at LHCb" Presented at European Physics Society Conference on High Energy Physics (EPS-HEP) 2015, held in Vienna, Austria 22-29 July 2015. PoS(EPS-HEP2015)539 .
- "CP violation in B and D systems at LHCb" Presented at 54th International Winter Meeting on Nuclear Physics, held in Bormio, IT 25-29 January 2015.

- "CP violation in B and D systems at LHCb" Presented at Le Rencontres de Physique de la Vallee d'Aoste 2014, held in La Thuile, Italy 23 February-1 March 2014. La Rivista del Nuovo Cimento Vol. 37, N. 6, 2014 DOI: 10.1393/ncc/i2015-11851-4
- "LHCb results and perspectives", XXV Three lessons at The Seminario Nazionale di Fisica Nucleare e Subnucleare. Otranto 19-24 September 2013.
- "Lepton Flavour Violation in tau and B meson decays" Presented at The XIth International Conference on Heavy Quarks and Leptons, held in Prague, The Czech Republic, 11-15 June 2012 PoS(HQL 2012)042

EDUCATIONAL AND OUTREACH ACTIVITIES

- 2014-17 Responsible for Milano-Bicocca of the International Masterclass in Particle Physics “Discover the world of Quarks and Leptons with real data”, a project of the International Particle Physics Outreach Group.
- 2008-2009 Responsible for the Milano-Bicocca unity of Progetto Lauree Scientifiche (PLS) - Physics. (MIUR project for dissemination of scientific culture in secondary schools, fostering interest towards scientific careers). I organized Conferences in schools and stages for students in the Department. I realized the LABEX laboratory which receives about 300 students per year.