

OLIVIERO CREMONESI CV

EDUCATION

- 1987 PhD in Physics, University of Milan, Italy
1982 Degree in Physics at University of Pavia, Italy

CURRENT POSITION

- 2006 - now Research Director (lev. I), INFN Milan, Italy

PAST POSITIONS

- 1995 - 2005 Senior Researcher (lev. II), INFN Milan, Italy
1990 - 1995 Researcher, Physics Department, University of Milan, Italy
1989 Fixed term researcher , INFN Milan, Italy
1987 Post-doc position, INFN Milan, Italy

NATIONAL AND INTERNATIONAL RESPONSIBILITIES

- 2012 - now Spokesperson of CUORE
2010 - now National PI of CUORE
2003 - 2012 Technical coordinator of CUORE
2003 - 2009 PI (with INFN funds) for the CUORE Milano and Milano-Bicocca group

NATIONAL AND INTERNATIONAL COLLABORATIONS

- 2005 - now Member of the CUORE and CUORE-0 Collaborations (Europe-USA-China)
2003 - 2008 Member of the Cuoricino Collaboration (Europe-USA)
1989 - 2003 Physics and Data Analysis coordinator of the Milano group pioneering the use of low temperature detectors for rare event searches
1986 - 1998 Member of the GALLEX Collaboration (Europe-USA-Israel)
1985 - 1990 Member of the Gran Sasso experiment on double beta decay of ^{136}Xe 1983
- 1986 Member of the Mont Blanc experiment on double beta decay of ^{76}Ge 1982 -
1983 Member of the NUSEX Collaboration (CERN-Italy)

MEMBERSHIP SCIENTIFIC BOARDS

- 2013-2016 Chair of the CUPID Steering Committee
2010-2012 Member of the CERN SPS and PS Experiment Committee
2004-2009 Observer in the Scientific committee for nuclear physics, INFN.
2003-2009 Member of the INFN Scientific Committee for Astroparticle Physics

TEACHING ACTIVITIES

I have supervised laboratory activities for the course of “Experimental Methods of Physics 2” at Milano University from 1990 to 1995. I have been adjunct professor for a number of courses on DSP, Detectors and Neutrino physics at the Milano and Milano Bicocca Universities. Since 2012 I am adjunct professor for the course of “Particle Physics I” at the Milano Bicocca University. Since 2013 I am visiting professor at Gran Sasso Science Institute

TUTORING AND MENTORING

Tutor for several undergraduate and PhD students of the Milan, Milano-Bicocca Universities and GSSI. I have been mentoring tens of young researchers during my participation in international collaborations.

REFEREE/REVIEWER

- Reviewer of scientific journals (Physics Letters B, European Physics Journal C)
- Referee of several experiments for the nuclear and astro-particle physics scientific committees of INFN
- Reviewer of new physics projects for international funding agencies (CNRS, Canadian NSF, USA NSF)

RESEARCH OUTPUT

- 212 publications, 6520 citations from 3832 articles (source WOS)
- Almost 40 invited presentation at scientific international conferences, international schools (most of which abroad: Europe, USA, Japan).

MAIN RESEARCH INTERESTS

- nucleon stability
- solar neutrinos
- neutrino properties
- rare nuclear decays and dark matter detection (WIMPS/axions)
- development of phonon mediated single particles detectors (bolometers) with scintillation and thermal read-out
- study of trace radio-contaminants and of techniques for their reduction
- data analysis and Monte Carlo simulations for low energies

My main interest is in studying novel approaches, instruments and techniques able to face the demanding experimental requirements typical of the rare event searches. Indeed, most of my research activities have been devoted to pioneering new experimental strategies for the search of neutrino less double beta decay.

RESEARCH ACTIVITIES

- In 1982 I joined the NUSEX collaboration as an undergraduate student at the Milan University.
- In 1983 I joined the *Milan group* that was proposing the use of commercial germanium diodes for the search of neutrino less double beta decay of ^{76}Ge : two of these detectors were installed in the Mont Blanc tunnel and provided the most stringent limits to date on neutrino less double-beta decay and paved the way to a true dynasty of proposals which include the recent GERDA and Majorana projects.
- In 1986, I joined GALLEX, the European Collaboration aiming to build a challenging experiment on low energy solar neutrinos. The experiment first demonstrated that

energy in the sun is produced by a chain of nuclear fusion reactions and that the solar neutrino puzzle is driven by unexpected properties of the neutrinos. I worked to the development and optimisation of the new sensitive gas counters and developed a new signal analysis based on the use of the optimum filter that provided an independent validation of the standard analysis method.

- In 1986 the Milan group completed the installation of a multi proportional gas chamber at the INFN Gran Sasso National Laboratories (LNGS), to search for neutrino less double beta decay of ^{136}Xe .
- In 1989 I joined the Milan group effort, lead by Prof. E.Fiorini, for the development of low temperature detectors. I coordinated data analysis activities developing all the needed software. In the 90's the group activities on bolometer development were split into two different research lines: microbolometers (milligrams to grams) for the study of the end part of the ^{187}Re beta spectrum (direct measurement of the antineutrino mass) and macro-bolometers (kg) for neutrino less double beta decay. We developed the world first large mass bolometers, with energy resolutions comparable (or even better) to those of conventional devices. We realized a number of experiments funded by INFN under the MIBETA abbreviation and paved the way for the ambitious projects like Cuoricino and CUORE. In 2003 I became responsible for the INFN Milano division funds of Cuoricino and CUORE and turned definitely to macro-bolometers. In the same year I was designated as technical coordinator of the CUORE project. In 2010 I became national PI of the CUORE activities.
- In 2012 I was elected spokesperson of the CUORE Collaboration.
- In 2016 I joined CUPID-0 as part of the Milano Bicocca group.