

**Massimo Caccia**  
**Professor**

**Dept. Science and High Technology**  
**University of Insubria**  
**Como**  
**Italy**

1. Academic cursus honorum
2. Main Research activities
3. Management, coordination, evaluation & peer reviewing, Technology Transfer activities
4. Teaching Activity
5. Publications, conference presentations and seminars

# 1 Academic Cursus Honorum

- **1985:** Laurea Degree in Physics, cum laude, at Università degli Studi di Milano
- **1986:** fellow of the *Angelo della Riccia Foundation* at the European Centre for Nuclear Research (CERN, Geneva, Switzerland) for 12 months
- **1987-1989:** graduate Student in Physics at Università degli Studi di Milano. The Ph.D. degree was awarded in 1990 after a defence at national level
- **1990:** post-doctoral Fellow of the Italian National Institute of Nuclear Physics (I.N.F.N.)
- **1990:** CERN Fellow in the Experimental Physics Division (2 year contract)
- **1991, December:** Appointed, after a public selection procedure, Research Officer with a permanent position at the Physics Dept. of Università degli Studi di Milano
- **1999:** after a public selection procedure at national level, M.C. is one of the candidates qualified for an Associate professorship in Experimental Physics. In November 1999, M.C. is appointed by Università degli Studi dell'Insubria, Faculty of Science.
- **2004:** director of the Dept. of Physics and Mathematics, Università degli Studi dell'Insubria, with a three year mandate
- **2010, September:** habilitation as Full Professor of Experimental Physics
- **2011, November:** appointment as Full Professor at Università degli Studi dell'Insubria, Faculty of Science

## 2 Main Research activities

M. Caccia's research activity is focused on the use of solid state detectors of ionizing particles and photons for High Energy Physics experiments, instruments and methods in Medicine, Radioprotection, Homeland and Cyber Security, High level Education. He contributed to the development of high granularity position sensitive sensors based on the direct detection of ionization in a Silicon substrate (microstrip and pixel detectors). Since 2006, the focus of his activity is related to Silicon Photomultipliers (SiPM), state-of-the-art sensors of light with single photon sensitivity and photon number resolving capability.

M.C. was member of the CERN based DELPHI collaboration at the Large Electron-Positron collider (1985-2000), where he served as project leader of the Very Forward Tracking Detector in 1997-1998. He also participated in the early development of the pixel detector for the ATLAS experiment at the CERN Large Hadron Collider.

Since 2001, his prevailing interest is in applied physics projects based on the technology developed for Particle Physics experiments:

- **2001-2004: Principle Investigator and coordinator of the SUCIMA project (Silicon Ultra fast Cameras for electron and gamma sources In Medical Applications, project id G1RD-CT-2001-00561), approved by the European Commission (EC) within the Fifth Framework Program. The proposal involved 10 partners, had a total budget of 3.5 million EUR and a financial contribution by the EC of 2.8 million EUR.** The project was focused on the development of novel imaging techniques for radioactive sources used in intravascular brachytherapy and for the quality control (QC) of beams at hadron therapy facilities. The development was based on custom designed pixel detectors in CMOS and SOI technology targeted to the design, construction and commissioning of a high granularity dosimeter and a particle beam real-time monitor. In terms of detectors, the consortium pioneered the pixel technology based on high resistivity Silicon-on-insulator wafers. Moreover, it developed the MIMOTERA, a CMOS monolithic active pixel sensor yet today with unique characteristics. The detector, back illuminated after an extreme thinning down to the epitaxial layer, is characterized by a modest granularity (153-micron pitch, for a total number of 10 000 pixels in the sensor) and by a patented architecture implementing a dead timeless operational scheme, with a frame rate up to 10 kHz and a full well capacity corresponding to a deposited energy of 30 MeV/pixel. The MIMOTERA, originally designed for QC at the hadron therapy machines, was exploited in a number of applications, reported in the following. **The project was classified as excellent by an ex-post evaluation performed for the EC by independent experts.**
- **2006-2008: Principal Investigator and coordinator of the RAPSODI project (Radiation Protection with Silicon Optoelectronics Devices), approved by the EC within the Sixth Framework Program (project id 32993, FP6-SME-COOP). The proposal involved 7 partners, had a total budget of 2.2 million EUR and a financial contribution by the EC of 1.5 million EUR.** The project was targeted to collaborative research

for the benefit of Small and Medium Enterprises and addressed the development of SiPM sensors, by the time in their infancy. The sensor activities within the collaboration were lead by SENSL, today one of the major player, and was aiming to the development of an end-user driven design & production process which could end-up with customized optimal sensors. The goal was pursued addressing the specific and complementary features required to integrate SiPM into novel instruments, namely: a device for real-time dosimetry in mammography (with PTW-Freiburg, D); a novel instrument for the measurement of indoor Radon concentration (with JP-SMM, Prague, CZ); a hand-held, battery operated pager compliant with the ISO standards concerning the illicit trafficking of radioactive material (FORIMTECH, Geneva, CH). By the end of the project, the objectives were fully met. **RAPSODI was also classified as excellent by an ex-post evaluation. It is worth mentioning that the know-how by the 3 research partners was licensed to CAEN s.p.a. and lead to the development of a flexible SiPM kit currently on the market. As a consequence, CAEN and Uni. Insubria established a Joint Development Center, still active by the time of writing.**

- **2009-2011: Principal Investigator and coordinator of the CLAVIUS project, approved within the EC-INTERREG program of cross border cooperation between Italy and Switzerland (INTERREG IT-CH). The proposal involved 5 partners, had a total budget of 384 kEUR and a financial contribution of 171 kEUR.** The workplan was based on the use of the MIMOTERA, resulting by the SUCIMA project. The goal of the activity was to qualify the MIMOTERA as a beam monitor of accelerated particle beams and to perform a measurement of the sun diameter relying on the drift-scan method and profiting from the high frame rate of the detector. The detector was commissioned for direct imaging and optimisation of ion beams extracted by a tandem accelerator used for material science and irradiation of living cells (in collaboration with the Laboratoire d'Analyses par Reactions Nucleaires (LARN), Namur, Belgium). The sensor was also used as a beam profilometer at the CERN-AD antiproton machine, in collaboration with the ACE-AD4 collaboration (2010-2014) studying the possibility to improve cancer hadron therapy by using anti-protons. Beam profilometry by direct impact was also performed at the Heidelberg Ion Therapy center, demonstrating an excellent linearity of the response over the full range of intensities and beam energies. Measurements of the sun diameter were performed at the IRSOL solar observatory (Istituto Ricerche Solari di Locarno, CH), following the development of a dedicated data acquisition system in collaboration with SUPSI (Scuola Universitaria Professionale della Svizzera Italiana). The results report a relative intrinsic precision at the  $10^{-5}$  level, to be compared to atmospheric variations larger by 2 orders of magnitude, possibly the most precise measurement ever performed for a ground based experiment.
- **2011-2014: Principal Investigator and coordinator of RADICAL (RADon: Integrating Capabilities of Associated Labs), an EC-INTERREG IT-CH proposal. The proposal involved 4 partners, had a total budget of 771 kEUR and a financial contribution of 289 kEUR.** The project addressed the development of instruments and methods for monitoring the indoor

radon concentration. More specifically, it targeted:

- the development of an auxiliary module for the wireless GPRS transmission to a web server of radon concentration values and environmental parameters;
- the study of protocols for monitoring and control of the radon concentration in buildings with public access and complex architecture (schools, hospitals, bank agencies), using a network of instruments;
- the development of on-field methods for the measurement of the equilibrium factor between radon and its progeny, essential for dosimetric studies.

The project was successfully completed

- **2012-2014: partner of the FP7 project identified as MODES-SNM (project id 284842, FP7-SECURITY), lead by Università di Padova. The proposal involved 8 partners, had a total budget of 3.2 million EUR and a financial contribution by the EC of 2.4 million EUR.** The project addressed the development of a novel fast neutron detector for homeland security at seaports and airports, based on the scintillation by  $^4\text{He}$  gas in a high pressure tube. The team lead by M.C. was in charge of the integration of SiPM arrays in a re-designed, optimized detector. The collaboration successfully concluded the project engineering a full scale prototype that was qualified by external, independent experts and authorities at the Rotterdam and Dublin seaport, at Heathrow airport and at the Basel custom. The main partner company (ARKTIS detectors, located in Zuerich, Switzerland) engineered the prototype, currently on the market. The know-how in security applications generated within the project lead the team to new contracts with agencies and companies in the field.
- **2015-today:** partner of University of Aveiro (Pt) and CAEN s.p.a. in a project targeting the development of a novel Positron Emission Tomography System for pre-clinical studies. A 2D prototype for high level education has been designed, qualified, optimized and engineered and it is currently being commissioned.
- **2106-today:** leading partner of a collaboration with AWE, the U.K. Atomic Weapons Establishment, focused on the characterization of a new class of neutron sensitive plastic and inorganic scintillator, neutron sensitive and with gamma-neutron discrimination. The collaboration involves as well KROMEK, a British based company active in the field of protection against nuclear threats.
- **2016:** Principal investigator of an exploratory project on radio-guided surgery based on the detection of positrons emitted by a  $^{18}\text{F}$  source, in partnership with Light Point Medical and UNITIVE design, two U.K. based companies.
- **2016-today:** Principal investigator of the design, construction, commissioning and qualification of a calorimetric module based on the detection of scintillation and Cherenkov fibers embedded in a copper converter. The prototype module, based on the use of a 64 channel SiPM array, was commissioned on beam in July 2016. An upgraded module has been constructed and qualified on a beam test in July 2017.

- **2019-today: Principal investigator of the proposal identified as Random Power, approved within the ATTRACT project, funded by the European Commission.** The ATTRACT project (<https://attract-eu.com>), lead by CERN, published a competitive call for the selection of 170 breakthrough ideas springing off the Particle Physics community. 1211 proposals were submitted and RANDOM POWER has been selected. The project targets the development of a True Random Number Generator, based on the analysis of the time series of self-amplified endogenous pulses in a dedicated Silicon Device. Random Power received a grant of 100 000 EUR for a one-year-long activity.
- **2019-today: partner of ORIGIN (<http://origin2020.eu>) an European Commission project approved within the HORIZON 2020 framework program. The proposal involves 8 partner, received funding for 4.8 Million EUR for three year activities and scored an exceptional evaluation of 15/15 marks.** The project, lead by University of Limerick (IL), is targeting the development of a fibre based real-time dosimeter for oncological brachytherapy. M. Caccia is in charge of the work-package on the development of the sensing and data acquisition systems.

M. Caccia continues on the track of basic research as a member of the AEGIS collaboration at CERN and being active in the International Linear Collider (ILC) community. As far as AEGIS is concerned, in 2015 the team lead by M.C. successfully commissioned a monitor for the slow antiproton beam at the entrance of the experiment, yet based on the MIMOTERA thinned down to a total thickness of  $50\mu m$  and operated at cryogenic temperature in high vacuum.

Concerning the ILC, M.C. lead an R&D project supported by the Italian National Institute of Nuclear Physics oriented to pixel based vertex reconstruction and SiPM based calorimetry (2006-2010).

Since 2016, M.C. is also part of the international collaboration involved in the design study of the next generation electron-positron circular collider in China (CepC).

### 3 Management, coordination, evaluation & peer reviewing, Technology Transfer activities

Beside the leadership of Research collaborations and project management, Massimo Caccia was serving as director of the Department of Physics and Mathematics for three years (2004-2007). Since its establishment (2005) and till June 2013, M.C. has been directing the unit at Uni. Insubria identified as SISRIT ( *SIstema di Supporto alla Ricerca, Innovazione e Trasferimento tecnologico*), in charge of supporting the Research personnel in Technology Transfer activities and submission of proposals to the EC.

As a consequence of the performed activities related to exploitation projects and collaborative projects with industries, since May 2007 till October 2012, M.C. was serving as Italian representative in the Technology Transfer Task Force ( $T^3F$ ), following a nomination by the I.N.F.N. President and the appointment by the CERN Council. The  $T^3F$  had the main charge to analyze the Knowledge Exchange & Technology Transfer process within the High Energy Physics community and propose actions to improve its efficiency and efficacy at CERN and in the member states.

Since October 2010 with a three year appointment M.C. has been member of the National Committee for Technology Transfer at I.N.F.N.

Since 2004 until 2008, M.C. was member of the International Advisory Committee of the international VERTEX yearly workshop. Since 2009, he is member of the International Advisory Committee for the Front-End Electronics international workshop.

Since 2006, M.C. is serving as Program Reviewer for the IEEE Nuclear Science Symposium and Medical Imaging Conference; in 2008, he was topic convener for the *New Solid State Detectors* session, together with G. Deptuch (now at FERMILAB). In 2019, he served as Topic Convener for the session on *Photodetectors* .

M.C. has been reviewing papers for Nuclear Instruments and Methods, the Journal of Instrumentation and the IEEE Transaction in Nuclear Science. Occasionally, he reviewed papers for the Journal of Micromechanics and Microengineering and the Chinese Optics Letters. In 2006 and 2007 he served as project evaluator for the French *Agence Nationale de la Recherche* while in 2006 he acted as external reviewer for the *Development Plan of the Research Activities* at Uni. Siena. Recently, he was reviewing research proposals for Uni. Padova and Uni. Catania. In 2017, he was appointed by the Polish National Research Agency as member of the evaluation board for the assignment of the POLONNEZ, MAESTRO and SONATA grants, a mandate still active today.

Since 2013 and until February 2019, Massimo Caccia served as coordinator of the Graduate School in Physics and Astrophysics at Uni. Insubria.

## 4 Teaching activity

Since his appointment as Full Professor, Massimo Caccia is in charge of the following courses for Physics students:

- Statistics and Probability (year 1)
- Physics Lab (year 1)
- High Energy Physics (year 4 or 5)
- Semiconductor particle detector laboratory (year 4 or 5)

Moreover, during the academic year 2012/2013, M.C. was in charge of the course on *General Physics* for students at the School of Engineering (year 1).

Massimo Caccia has been tutor and person in charge of more than 20 thesis at diploma and master level and internal reviewer for 6 thesis in Environmental and Medical Physics, with activities developed in Medical Physics units hosted by hospitals or at the Environmental Protection Agency. Moreover, he has been supervising (Directeur de thèse) 7 Ph.D. students and co-supervising 1 graduate student enrolled within the Ph.D. program in Milano.

Since 2019, M. Caccia is part of the team involved in a design study on the implementation of a master course in Data Science at Università dell'Insubria.



## 5 Publications, conference presentations and seminars

Massimo Caccia is author or co-author of more than 415 articles published in peer reviewed journals and conference proceedings. According to the SPIRES data base (<http://www-spires.fnal.gov/>) his papers have a total number of citations (excluding self-citations) = 21 589 and a h-factor = 65. The majority of the papers can be associated to the activity within the CERN based large collaborations. Throughout his career, M.C. presented the results of his activity in about 120 conferences and seminars.

Como, July 2020

A handwritten signature in black ink on a light-colored background. The signature consists of a large, stylized capital letter 'M' followed by a horizontal line and the word 'Caccia' written in a cursive script.

Massimo Caccia

# *Catalina Oana Curceanu*

## *Curriculum Vitae*

### Personal data

**Name:** Catalina Oana Curceanu  
**Sex:** F  
**Nationality:** Romanian - resident in Italy (since 1991)  
**Work address:** Laboratori Nazionali di Frascati dell'INFN,  
Via E. Fermi 40, 00044 Frascati (Roma), Italy  
phone: +39 – 06 – 94032321  
e-mail: [Catalina.Curceanu@lnf.infn.it](mailto:Catalina.Curceanu@lnf.infn.it)

**Present position:** Senior Researcher, group leader in experimental physics at LNF-INFN (Italy)

### Studies and qualifications

- **1980 – 1984:** Scientific high-school (mathematics and physics), Bucharest, Romania.
- **1984 – 1988:** Faculty of Physics, University of Bucharest; specialization in Nuclear Physics and Elementary Particle Physics. **B. SC. Degree**, obtained with the highest qualification (10/10), having obtained mark 10 in all exams.
- **1988 – 1989:** Master of Science at the Faculty of Physics, University of Bucharest; specialization in Nuclear Physics and Elementary Particle Physics. **M. Sc. Degree**, obtained with the highest qualification (10/10), having obtained mark 10 in all exams.
- **1993 – 1999:** Ph.D. at the Institute of Physics and Nuclear Engineering of Bucharest, with a thesis entitled “*Study of exotic mesons in the antiproton-proton annihilation*”, with research activity in the framework of the OBELIX experiment at CERN (Geneva). **Ph.D. in Physics, Summa cum Laude.**
- **July 2000: Degree in Physics** at the University of “Tor Vergata” of Roma (Italy), obtained with “110/110 e lode”, with a thesis entitled “*Production and study of kaonic hydrogen at the DAΦNE electron-positron collider*”.

### Employment history

- **1989 – 1990: Researcher**, Nuclear Power Plant of Zero Power, Pitesti, Romania;
- **1990 – 1996: Associated Researcher**, staff, IFIN-HH, Bucharest, Romania;

- **1996 – 2003: Researcher, staff**, IFIN-HH, Bucharest, Romania;
- **1992 – 2003: Researcher**, Laboratori Nazionali di Frascati dell'INFN, LNF-INFN (Italy), with various types of contracts;
- **2004 – 2005: Researcher**, staff, Laboratori Nazionali di Frascati dell'INFN, LNF-INFN (Italy)
- **2006 – present: Experienced Researcher (Primo Ricercatore)** and group leader, staff, Laboratori Nazionali di Frascati dell'INFN, LNF-INFN (Italy).

## Research activity:

- I) *Professional experience and responsibilities*
- II) *Formation and Dissemination activities*
- III) *Organization of international conferences*
- IV) *Invited talks*
- V) *Editorial and scientific review activities*

### **I) *Professional experience and responsibilities***

#### ***1.1 International collaborations***

- ***Research in the field of hadronic and nuclear physic: studies of kaonic atoms and of the antikaon-nucleon/nuclei interactions***

DEAR	Responsible of measurement strategy, of Monte Carlo and data analyses (1997 – 2003)
SIDDHARTA	<i>Responsible for INFN and LNF</i> (LNF-INFN) (2004-2010)
SIDDHARTA-2	Responsible for data analyses and measurement Spokesperson (2010-present)
AMADEUS	Co-spokesperson (2005-present)
KAONNIS	National responsible for INFN (2010-present)
- ***Experimental Quantum Physics***

VIP and VIP2	Spokesperson (2004-present) National responsible for INFN (2004-2017)
FQXi financed project	PI, 2015 - 2017
JTF financed project	PI, 2015 - 2018
FQXi minigrants	various between 2016 and 2020

### *1.2 European financed projects*

- **January 2004 – December 2008:** LNF Responsible for the JRA10 SIDDHARTA activity within (I3) HadronPhysics project in EU FP6.
- **May 2008 – December 2008:** *Coordinator of the European FP6 - Researchers' Night 2008 (Eyes on Scientists) project.*
- **January 2009 – March 2015:** INFN responsible for the WP9 LEANNIS (Network: Low Energy Antikaon-Nucleon/Nuclei Interaction Studies), WP24 JointGEM (Joint Research Activity on TPC-GEM) and WP28 SiPM (Joint Research Activity on Silicon PhotoMultipliers) in the EU projects HadronPhysics2 e HadronPhysics3 of FP7.
- **January 2009 - March 2015:** Responsible with dissemination activities for the HadronPhysics2 e HadronPhysics3 EU projects in FP7.
- **June 2011 – June 2015:** Italian representative for the project: EU COST MP1006 (European Cooperation in Science and Technology): Fundamental Problems in Quantum Physics; STSM (Short Time Scientific Missions) and Gender Balance responsible.
- **since October 2016:** Italian Representative, STSM responsible Managing Committee member for the project: EU COST Action (European Cooperation in Science and Technology): CA15220, Quantum Technologies in Space.
- **January 2018 - present:** PI for the FETOPEN financed project: TEQ project in quantum technologies (Testing the Large Scale Limit of Quantum Mechanics), Deputy Coordinator
- **June 2019 – present:** Coordinator of the Dissemination Working Package and Italian INFN Representative within the STRONG-2020 European Project

### *1.3 International project/grants*

- **1 September 2015 – 31 August 2017** PI for the project: ““Events” as we see them: experimental test of the collapse models as a solution of the measurement-problem” financed by the Foundational Question Institute (FQXI).
- **2 November 2015 – 1 August 2018:** PI for the project: “Hunt for the “impossible atoms”: the quest for a tiny violation of the Pauli Exclusion Principle. Implications for physics, cosmology and philosophy” financed by the John Templeton Foundation.
- **July 2013 – June 2018:** *INFN participant in the project financed by the Croatian Science Foundation*, HRZZ 1680, on hadron physics.
- **Six mini-grants from FQXi: 2017, two in 2018, two in 2019 one in 2020.**

### *1.4 Italian financed projects*

- **January 2010 – December 2011:** LNF-INFN responsible in the project PRIN2008 “*Problemi aperti in meccanica quantistica: aspetti teorici e sperimentali della transizione dal microscopico al macroscopico*” (*Quantum Mechanics*)

- **January 2012 – December 2015:** INFN coordinator for the industrial leadership projects PED4PV– Pulsed Electron Deposition for Photovoltaic, and CIGS Thin Films.
- **January 2012 – December 2015:** Project coordinator “Problemi Aperti della Meccanica Quantistica – Sistemi di Rivelatori SSD e Modelli di Riduzione Dinamica” (Open problems in quantum mechanics), financed by Centro Fermi, Roma, Italy.
- **January 2016 – present:** Project coordinator “Problemi aperti della Meccanica Quantistica – Nuovi sviluppi teorici, ricerche sperimentale innovative”(Open problems in quantum mechanics – 2) financed by Centro Fermi, Roma (Italy).
- **January 2017 – present:** Project coordinator for the Italy-Japan project of big relevance, StrangeMatter, Financed by the Italian Ministry for Foreign Affairs
- **November 2018 – present:** PI for the Italian project SICURA financed by Regione Lazio per Progetti di Gruppi di ricerca

### *Financial management*

During the last 10 years I managed funding for research activities related to various projects (see above) for more than 5 Million Euro.

## **II) Educational and Dissemination activities (main activities only)**

- **Tutor/coordinator** of 10 B. Sc. theses, 6 M. Sc. Theses and 12 Ph D theses for italian Universities and International Universities. Coordinator of Post Doc researchers: 10 post-docs
- **January 2010 – present: Coordinator Winter Stage at LNF** for high-school students (<http://www.lnf.infn.it/edu/stageInf/2015/invernali/>)
- **January 2011 – present: Scientific Responsible** with formation activities at LNF-INFN for schools (<http://www.lnf.infn.it/edu/percorsi-formativi/2014/>)
- **2011 – present: LNF-INFN responsible** for the exchange students with the DOE (USA), within the DOE/INFN students exchange program
- **March 2011 – present: Director of the course: Incontri di Fisica (IdF)**, for high-school science teachers, at LNF-INFN (<http://www.lnf.infn.it/edu/incontri/2017/>)
- **March 2011 – present: Scientific coordinator** for the International Masterclass INSPYRE at LNF-INFN (es: <http://edu.lnf.infn.it/inspyre2018/>)
- **10-12 July 2013: Organizer of the Summer Camp** “Ballando con le particelle. La fisica moderna per ragazzi curiosi” ([http://www.lnf.infn.it/edu/stageInf/2013/prog\\_AISTAPsumcamp13.html](http://www.lnf.infn.it/edu/stageInf/2013/prog_AISTAPsumcamp13.html))
- **4-5 August 2014: Organizer of the Mini-stage** in Modern Physics: Challenges and Opportunities (<http://www.lnf.infn.it/edu/stageInf/2014/summer-mini-stage/>)

- **Since 2015: Scientific Director** of the international school: INSPYRE “INternational School on modern PhYsics and Research” at the LNF-INFN– for 2020 online edition supported by FQXi: <http://edu.lnf.infn.it/inspyre-2020/>
- **“International Year of Light”, LNF-INFN, 21/06/2015 presentation:** <http://edu.lnf.infn.it/programma-seminari-divulgativi-2015/gennaio/> and video at: <https://www.youtube.com/watch?v=JRAig1qShMg> – more than 19000 visualizations
- **Organizer of formation stage on electronics design for silicium based detectors:** 12-14 Ottobre 2015 (LNF-INFN)
- **2015 – present: Science Cnferences for elementary and medium schools:** *Le Meraviglie dell’Universo per ragazzi curiosi. Magic Kids*, at the Casa di Pia library in Frascati
- **2015, 2016, 2017, 2018 : Lectures on** *Relatività, meccanica quantistica e cosmologia*, for l’Associazione Tuscolana di Astronomia, Livio Gratton, <http://lnx.ataonweb.it/wp/2016/01/2451/> (for 2016)
- **25 Nov. 2015: FISICAST Radio Scienza:** – interview on: Chi ha “rubato” l’antimateria?: <http://www.radioscienza.it/2015/11/25/chi-ha-rubato-lantimateria> and on Schroedinger’s cat: <http://www.radioscienza.it/2017/04/18/il-gatto-di-schroedinger/>
- **25 Novembre 2015: Conference:** *Dai Buchi Neri all’Adroterapia. Un viaggio nella Fisica Moderna*, within the event: *Nelle stanze segrete:* <http://www.libreriaassaggi.it/2015/11/06/nelle-segrete-stanze-v-con-barucca-caminiti-curceanu/>, Libreria Assaggi, Roma
- **Tens of lectures in schools in Italy, Romania, Australia**
- **26 February 2016: Speaker at** Congress "Una rivoluzione copernicana nel XX secolo: la fisica quantistica", organized by Rotary Roma Sud Est and Club Rotary Roma Centenario.
- **9 April 2016: speaker at the event: TEDxRoma, Game Changers,** <http://tedxroma.com/> e <http://tedxroma.com/portfolio-items/catalina-curceanu/> with a talk on: *Sinfonia quantistica nei computer di domani: dal bit al qubit*
- **Science blog:** <http://scientia.ro/blogurile-scientia/blog-catalina-curceanu.html> with hundreds of scientific articles published
- **Videoconference for ScienceHub, 16 April 2016,** [https://www.youtube.com/watch?v=ucZu\\_IPoAKk&feature=youtu.be](https://www.youtube.com/watch?v=ucZu_IPoAKk&feature=youtu.be) - 7 mysteries of modern physics
- **Speaker in various events organized by MENSA Lazio;** the last talk: "La ricerca delle onde gravitazionali: la storia, la scoperta e il futuro", 30 april 2016, Roma.
- **Mattinees di scienza: Bim-Bum-Bang: Dal Big Bang alla terapia dei tumori con gli acceleratori di particelle, 15 April 2016, LNF-INFN;** *Circuitiamo? Dietro le quinte delle grandi scoperte della Fisica Moderna*, LNF-INFN, **6 may 2016.**
- **Video Lecture on Parallel Universes:** <https://www.youtube.com/watch?v=lBs-N5SnJfw> with more than 30000 views
- **Speaker at the TEDxBrasov 2017, at TEDxFrascati 2019 events:**

<http://tedxbrasov.com/catalina-oana-curceanu/>  
<https://www.youtube.com/watch?v=f5FqZqoaYYw>

### **III) Selection of Conferences, Workshops, Training Schools organizer – last 7 years**

- International Workshop “*Strangeness in the Universe? Theoretical and experimental progress and challenges*”, ECT\* Trento, 21-25 October 2013 (**Chair**);
- International Workshop “*Quantum mechanics tests in Particle Atomic, Nuclear and Complex Systems: 50 years after Bell’s renowned theorem*” ECT\*, Trento (Italy) 24-25 February 2014, (**Organizer**);
- 13<sup>th</sup> International Workshop on *Meson Production, Properties and Interaction* MESON 2014, KRAKÓW, POLAND, 29 May - 3 June 2014 (**Organizer**);
- Workshop “*Questioning fundamental physics principles*”, CERN, 6-9 May 2014 (**Organizer**);
- Workshop “*Achievements and Perspectives in Low-Energy QCD with Strangeness*”, ECT\*, Trento (Italy), 27-31 October 2014 (**Chair**);
- Workshop “*Fundamental Problems in Quantum Physics*”, Erice (Italy), 23-27 March 2015, (**Chair**);
- Workshop “*Is quantum theory exact? The endeavor for the theory beyond standard quantum mechanics*” – FQT2015, Frascati (Italy), 23-25 September 2015, (**Chair**);
- Workshop “*Frontiers in hadron and nuclear physics with strangeness and charm*”, ECT\*, Trento (Italy), 19-23 October 2015, (**Chair**);
- 12<sup>th</sup> International Conference on *Hypernuclear and Strange Particle Physics*, HYP2015, Sendai (Japan), 7-12 September 2015 (**IAC member**);
- 14<sup>th</sup> International Workshop on *Meson Production, Properties and Interaction* MESON 2012, Krakow, POLAND, 2-7 June 2016 (**Organizer**);
- Meeting “*Strangeness, Gravitational waves and neutron stars*”, Frascati (Italy), 10 June 2016 (**Organizer**);
- Workshop “*Testing the limits of the quantum superposition principle in nuclear, atomic and optomechanical systems*”, ECT\*, Trento (Italy), 11-16 September 2016, (**Organizer**).
- Training school for graduating students, PhD students and young researchers. “*Are spin-statistics connection and quantum theory exact? The endeavor for the theory beyond the standard quantum mechanics*” , 19-21 December 2016, LNF-INFN, Frascati (Italy) (**Chair**);
- Workshop Quantum Foundations, “*The physics of “what happens” and the measurement problem*”, 24-26 May 2017, LNF-INFN Frascati, Italy (**Chair**);
- Conference “*Is quantum theory exact? The quest for spin-statistics connection and related items*”, 2-6 July 2018, Frascati, Italy (**Chair**);
- HYP2018. The 13th International Conference on Hypernuclear and Strange Particle Physics, 24-29 June 2018, Portsmouth, VA – USA (**IAC Member**)

- Workshop Quantum Foundations, “*Is Quantum Theory exact? From quantum foundations to quantum applications*”, 23-27 Sept 2019, LNF-INFN, Frascati

I am member of Local Organizing Committee and member of IAC for:

*Channeling 2004*, Frascati, Italia; *DAΦNE2004: Physics at Meson Factories*, Frascati, Italia; *Comunicare Fisica 2005*, Frascati, Italia; *Channeling 2006*, Frascati, Italia; *Frascati Spring School 2007*, Frascati, Italia; *HADRON07*, Frascati, Italia; *Comunicare Fisica 2010*, Frascati, Italia; *Channeling 2010*, Ferrara, Italia; *Channeling 2012*, Alghero, Italia; *Channeling 2014*, Capri, Italia; *EDIT2015*, Frascati; *Channeling 2016*, Desenzano del Garda.

I am Chair of the MESON 2020 International Workshop (<https://meson.if.uj.edu.pl/?id=4>)

#### **IV) Representative invited talks during last 10 years**

I have given more than 100 talks (at least 50 invited), among these in the last 10 years the most representatives ones are:

- 1) **Testing Quantum Mechanics underground @ Gran Sasso**, FQXi Conference Mind Matters: Intelligence and Agency in the Physical World, 20-25 July 2019, Castelvecchio Pascoli, Italy
- 2) **Quantum 2019 From Foundations of Quantum Mechanics to Quantum Information**, “*Challenging Quantum Mechanics underground: X Rays whispers in the Cosmic Silence*”, Quantum 2019, 26th May – 1st June 2019, Torino, Italy
- 3) **Towards Ultimate Quantum Theory**, “*Quantum Mechanics Underground*”, Vaxjo, 11-14 June 2018, Sweden
- 4) **Quantum 2017, From Foundations of Quantum Mechanics to Quantum Information and Quantum Metrology & Sensing Conference**, “*Quantum mechanics under X Rays in the Gran Sasso underground laboratory*”, 7-13 May 2017, Torino (Italy)
- 5) **Gravitational decoherence Conference**, Hereaus, “*Whispers in the cosmic silence. Underground experiments to chart the landscape of (gravity induced?) collapse models*”, Bad Honnef, Germany, 26-28 June 2017
- 6) **Precision Physics, Quantum Electrodynamics and Fundamental Interactions**, “*Stars, gravity and quantum mechanics investigations from the exotic atoms studies to the impossible atoms hunting*” IESC Cargese (France), 1-5 May 2017



- 7) **Eighth International Workshop DICE2016**, “*Underground tests of quantum mechanics. Whispers in the cosmic silence?*”, Castello Pasquini/Castiglione (Tuscany, Italy), September 12-16, 2016
- 8) **KITPC**, Beijing - China, Clustering effects of nucleons in nuclei and quarks in multi-quark states, “*From strange atoms and strange nuclei to the stars. Experiments with low-energy kaons at the DAFNE Collider in Italy*”, Beijing (China), 6 April 2016 (22 March – 22 April)
- 9) 2) **HYP2015** – XII International Conference on Hypernuclear and Strange Particle Physics, “*Strangeness in the Universe? Low-energy kaon-nuclei interactions studies with AMADES at DAFNE*”, Sendai (Japan), 7-12 September 2015.
- 10) **QTFT 2015** Conference, “*The X-ray machine for the Quantum Mechanics examination*”, Vaxjo (Sweden), 8-11 June 2015.
- 11) **Quantum 2014** Workshop, “*Hunting the impossible atoms: Pauli Exclusion Principle Violation and spontaneous collapse of the wave function at test*”, Torino (Italy), 25 – 30 May 2014.
- 12) **Hadrons in Nuclei, YITP** Conference, “*Advances and perspectives in the low-energy kaon-nucleon/nuclei interactions studies at the DAFNE Collider*”, Kyoto (Japan) 30 October – 2 November 2013.
- 13) **INPC2013**, International Nuclear Physics Conference, “*Unveiling the strangeness secrets: low-energy kaon-nucleon/nuclei interaction studies at DAFNE*”, Firenze (Italy), 3-7 May 2013.
- 14) **HYP2012-XI** International Conference on Hypernuclear and Strange Particle Physics, “*Unlocking the secrets of the antikaon-nucleon/nuclei interactions at low energies. The SIDDHARTA and the AMADEUS experiments at the DAFNE Collider*”, Barcelona (Spain), 1-5 October 2012.
- 15) **NDIP2011**, 6<sup>th</sup> International Conference Nouveaux Développements En Photodétection, “*Experimental tests of the trigger prototype for the AMADEUS experiment based on SciFi read by SiPM*”, Lyon (France), 4 – 8 July 2011.
- 16) **EFB21**, European Few Body Conference, “*Low energy kaon-nucleon/nuclei interaction studies at DAFNE (SIDDHARTA and AMADEUS)*”, Salamanca (Spain), 29 August - 3 September 2010.

## V) *Editorial and scientific review activities*

- Editor proceedings various conferences
- Rapporteur for various conferences

- **Referee for:** *European Journal of Physics, Reviews of Modern Physics, Chinese Optics Letters and Foundation of Physics.*
- **Scientific referee** (international projects evaluation boards) for: Austrian Academy of Sciences; Czech Academy of Sciences; Roumanian Ministry of Education and Science; MIUR – Italy; Ministry of education and sciences of Kazakistan; PSI (Switzerland)
- **Scientific referee for the *National Science Foundation* (NSF), USA.**
- **Scientific Referee and member in academic council for Ph D:** *Jagiellonian University, Cracovia (Polonia); Vienna University (Austria), Technical University (Vienna, Austria)*

### International Awards

- *The 2010 Celebrity of the year in science*, awarded by Accademia di Romania.
- **2012: The American Romanian Academy of Arts and Sciences “Prof. Dr. Mircea Sabau ARA Award” for Excellence in Physics/Chemistry** in the recognition of the distinguished contribution to the advancement of the Arts and Sciences in the spirit of the free exchange of values and ideas, Bari, Italy, June 2012.
- **2015: Third prize of the 50<sup>a</sup> Edizione “Carnevale della Fisica” per disseminazione scientifica (Genova)**
- **2015: The American Romanian Academy of Arts and Sciences “ARA Award for Excellence in Science”**, Frascati (Roma, Italy)
- **September 2015: Award from the Foundational Question Institute (FQXI) for the project:** “ “Events” as we see them: experimental test of the collapse models as a solution of the measurement-problem” (1 September 2015 – 31 August 2017)  
[http://fqxi.org/grants/large/awardees/view/\\_\\_\\_details/2015/curceanu](http://fqxi.org/grants/large/awardees/view/___details/2015/curceanu)
- **November 2015: Award from the John Templeton Foundation for the project:** “*Hunt for the “impossible atoms”: the quest for a tiny violation of the Pauli Exclusion Principle. Implications for physics, cosmology and philosophy*”  
<https://www.templeton.org/grant/hunt-for-the-impossible-atoms-the-quest-for-a-tiny-violation-of-the-pauli-exclusion-principle-implications-for-physics-cosmology-and-philosophy>
- **2016: Australian Institute of Physics (AIP) Women in Physics Lecturer award for 2016.**
- **March 2016: The 7<sup>th</sup> Technology Incentive Award in RIKEN** (with TES group)
- **2017 Visiting International Scholar Awards (VISA)**, University of Wollongong (Australia),  
<http://www.uow.edu.au/research/researchgrants/visaprogram/UOWI90234.html>
- **2017, 2018, 2019, 2020** : Mini-grants from the FQXi <http://fqxi.org/grants/mini/winners>

- **2017:** EPS, European Physical Society **Emmy Noether Distinction for Women in Physics**
- **December 2017: 2017 “Tuscolanae Science award” prize**, by the Associazione Tuscolana di Astronomia
- **June 2018: Award 100** from the Ministry for Romanians abroad
- **2018: Thomas Lyle Award** from Melbourne University (Australia)
- **2018: George Southgate Fellowships** from the Adelaide University (Australia)
- **November 2018:** Order of Knight of Romania for Cultural Merit
- **2019 Fundamental Physics Innovation Award** of the American Physics Society, Gordon and Betty Moore Foundation

### Member of Academies and Associations

- **Since 2014:** *member of the scientific council of ATA* (Associazione Tuscolana di Astronomia Livio Gratton).
- **Since January 2016:** *member of the Foundational Question Institute* (FQXi).
- **January 2016 – December 2017:** *member of the NUPECC per Long Range Plan board* (Working Group 5 – Fundamental Interactions and Symmetries).

### Visiting Scientist

- **Visiting Scientist at RIKEN** (Wako, Saitama Giappone), 18 Gennaio 2010 – 18 Febbraio 2010
- **Visiting Scientist a RIKEN** (Wako, Saitama Giappone), 12 Marzo 2016 – 29 Marzo 2016
- **Visiting Scientist a IKTP (Kavli Institute for Theoretical Physics), Chinese Academy of Science** (Beijing, China), 29 Marzo 2016 – 7 Aprile 2016
- **2016 Women in Physics Lecturer, Australian Institute of Physics:** 8 – 31 August 2016, Australia.
- **15 July – 15 September 2017: Visiting International Scholar** (VISA), University of Wollongong (Australia)
- **1-10 August 2018 Visiting researcher** at Osaka University, RIKEN and Sendai University
- **11 August – 4 September 2018: Lyle Fellow** at University of Melbourne (Australia)
- **June 2019:** visiting scientist at IAS Princeton (USA)
- **1 – 26 December 2018: George Southgate fellow** at the Adelaide University (Australia)
- **August 2019:** visiting scientist in the Quantum group at Griffith University , Brisbane (Australia)
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## Languages skills

- **Italian:** fluent
- **English:** fluent
- **French:** intermediate
- **German:** beginner
- **Hungarian:** beginner
- **Rumanian** mother tongue

## Other activities

- I am author/coauthor of more than 400 publications in refereed journals (some under name Petrascu): for the full list see:
- [http://inspirehep.net/search?ln=it&ln=it&p=find+a+curceanu+or+petrascu%2C+c&of=hb&action\\_search=Cerca&sf=earliestdate&so=d&rm=&rg=25&sc=0](http://inspirehep.net/search?ln=it&ln=it&p=find+a+curceanu+or+petrascu%2C+c&of=hb&action_search=Cerca&sf=earliestdate&so=d&rm=&rg=25&sc=0)
- I have organized more than 40 international workshops and conferences (about 12 at ECT\*)
- I gave more than 50 invited talks and colloquia in international workshops and conferences
- I realize intensive dissemination and educational activities
- I am author of a dissemination book published with Springer Editor (Dai Buchi Neri all'Adroterapia. Un Viaggio nella fisica moderna - <http://www.springer.com/fr/book/9788847052406>

***Full publication list***  
***Catalina Oana Curceanu (Petrascu)***

- R1) D. Bucurescu, **C. Petrascu** *et al.*, "Search for spontaneous pion emission in  $^{252}\text{Cf}$ ", Rev. Roum. Phys. **32** (1987) 849.
- R2) M. Ivascu, **C. Petrascu** *et al.*, "Search for pion emission in thermal neutron induced fission of  $^{235}\text{U}$ ", Rev. Roum. Phys. **33** (1988) 105.
- R3) D.B. Ion and **C. Petrascu**, "Towards an optimal state analysis in pion nucleon scattering", Rev. Roum. Phys. **37** (1992) 567.
- R4) D.B. Ion, **C. Petrascu** and A. Rosca, "Experimental evidence for the optimal states in kaon-nucleon scattering", Rev. Roum. Phys. **37** (1992) 977.
- R5) D.B. Ion, A. Rosca and **C. Petrascu**, "Cherenkov mechanism analysis in pp, antip-p,  $\text{K}^+\text{p}$  interactions", Rev. Roum. Phys. **37** (1992) 991.
- R6) D.B. Ion and **C. Petrascu**, "Optimal state analysis in proton-proton and antiproton-proton scattering", Rev. Roum. Phys. **38** (1993) 23.
- R7) D.B. Ion, **C. Petrascu**, A. Rosca and V. Topor, "Optimal state evidences in antiproton-proton scattering at low energies", Rom. J. Phys. **39** (1994) 213.
- R8) D.B. Ion, **C. Petrascu** and A. Rosca, "Pion production via Cherenkov-like effect in hadronic media", Rom. J. Phys. **39** (1994) 395.
- R9) M. Agnello, **C. Petrascu** *et al.*, "Antiproton slowing down in  $\text{H}_2$  and He and first evidence of nuclear stopping power", Phys. Rev. Lett. **74** (1995) 371.
- R10) V.G. Ableev, **C. Petrascu** *et al.*, "Measurement of the antiproton-proton annihilation at rest", Nucl. Phys. **A585** (1995) 577.
- R11) V.G. Ableev, **C. Petrascu** *et al.*, " $\phi\pi^0$  and  $\phi\eta$  production in antiproton annihilation at rest in a hydrogen gas target at NTP", Nucl. Phys. **A594** (1995) 375.
- R12) A. Bertin, **C. Petrascu** *et al.*, " $\text{E}/\text{t}$  decays to  $\text{K}^+\text{K}^-\pi$  in antiproton-proton annihilation at rest", Phys. Lett. **B361** (1995) 187.
- R13) A. Bertin, **C. Petrascu** *et al.*, "Antiproton-proton annihilation cross section at very low energy", Phys. Lett. **B369** (1996) 77.

- R14) V.V. Barmin, **C. Petrascu et al.**, "New upper limits for H-particle production in antiproton-Xenon annihilation at low energy" (DIANA Collaboration), Phys. Lett. **B370** (1996) 233.
- R15) A. Bertin, **C. Petrascu et al.**, "Measurement of the  $\eta(1440) \rightarrow K^{+/-} K_L^0 \pi^{+/-}$  production rates from antiproton-proton annihilation at rest at three different hydrogen target densities", Phys. Lett. **B385** (1996) 493.
- R16) A. Bertin, **C. Petrascu et al.**, "Protonium annihilation into  $K_S K_L$  at three different target densities", Phys. Lett. **B386** (1996) 486; (E) **B389** (1996) 781.
- R17) A. Bertin, **C. Petrascu et al.**, "New data on OZI rule violation in antiproton-proton annihilation at rest", Phys. Lett. **B388** (1996) 450.
- R18) V.G. Ableev, **C. Petrascu et al.**, "Experimental antiprotons nuclear stopping power in  $H_2$  and  $D_2$ ", Phys. Rev. **A54** (1996) 5441.
- R19) A. Bertin, **C. Petrascu et al.**, "Exotic trapping of antiprotons in  $^4He$ : dependence on pressure", Il Nuovo Cimento **A109** (1996) 1505.
- R20) A. Bertin, **C. Petrascu et al.**, "Changes in annihilation delay time distribution of stopped antiprotons in helium gas, due to contaminants -II", Il Nuovo Cimento **A110** (1997) 419.
- R21) A. Bertin, **C. Petrascu et al.**, "A search for axial vectors in antiproton-proton  $\rightarrow K^{+/-} K_{miss}^0 \pi^{+/-} \pi^+\pi^-$  annihilations at rest in gaseous hydrogen at NTP", Phys. Lett. **B400** (1997) 226.
- R22) A. Bertin, **C. Petrascu et al.**, "New data on  $\Delta^{++}$  -baryon production in antiproton-proton annihilation at rest", Phys. Lett. **B403** (1997) 177.
- R23) A. Bertin, **C. Petrascu et al.**, "Spin-parity analysis of the final state  $\pi^+\pi^-\pi^0$  from antiproton-proton annihilation at rest in hydrogen targets at three densities", Phys. Lett. **B408** (1997) 476.
- R24) A. Bertin, **C. Petrascu et al.**, "Study of antineutron-proton annihilation in two mesons in the momentum range between 50 to 400 MeV/c with OBELIX", Phys. Lett. **B410** (1997) 344.
- R25) A. Bertin, **C. Petrascu et al.**, "Study of the antiproton-proton  $\rightarrow 2\pi^+2\pi^-$  annihilation from S states", Phys. Lett. **B414** (1997) 220.
- R26) C. Guaraldo, **C. Petrascu et al.**, "The DEAR experiment at DAΦNE", Nucl. Phys. **A623** (1997) 311c.
- R27) A. Benedettini, **C. Petrascu et al.**, "Antiproton-proton partial cross sections at low energy", Nucl. Phys B **56A** (1997) 58.

- R28) A. Benedettini, **C. Petrascu** *et al.*, "Results on spin-parity analysis of antiproton-proton  $\rightarrow \pi^+\pi^-\pi^0$  annihilation at rest from different density hydrogen targets", Nucl. Phys B **56A** (1997) 146.
- R29) A. Benedettini, **C. Petrascu** *et al.*, "Results on spin-parity analysis of antineutron-proton  $\rightarrow \pi^+\pi^-\pi^+$  in flight", Nucl. Phys B **56A** (1997) 160.
- R30) A. Benedettini, **C. Petrascu** *et al.*, "Meson spectroscopy with very low momentum antiprotons", Nucl. Phys B **56A** (1997) 188.
- R31) A. Benedettini, **C. Petrascu** *et al.*, "Antineutron-proton annihilation in flight in two mesons in the momentum range between 50 and 400 MeV/c with OBELIX", Nucl. Phys B **56A** (1997) 227.
- R32) A. Benedettini, **C. Petrascu** *et al.*, "Study of the isovector scalar mesons in the channel antiproton-proton  $\rightarrow K^{+/-} K^0_S \pi^{+/-}$  at three hydrogen target densities", Nucl. Phys B **56A** (1997) 262.
- R33) C. Guaraldo, **C. Petrascu** *et al.*, "Disentangling the kaonic hydrogen  $K_\beta$ -complex with DEAR", Il Nuovo Cimento **A110** n.11 (1997) 1347.
- R34) D.B. Ion, M.L.D. Ion and **C. Petrascu**, "Information entropies in antiKN scattering and optimal state analysis", Roum. J. Phys. **43** (1998) 385.
- R35) A. Bertin, **C. Petrascu** *et al.*, "Study of the  $f_0(1500)/f_2(1565)$  production in the exclusive annihilation antineutron-proton  $\rightarrow \pi^+\pi^+\pi^-$  in flight", Phys. Rev. **D57** (1998) 55.
- R36) **C. Petrascu** *et al.*, "Kaon-Nucleon Interaction Studied by Kaonic X rays with DEAR at DAΦNE", Acta Physica Polonica **B29** (1998) 2269.
- R37) V. Nomokonov, **C. Petrascu** *et al.*, "Study of antiproton-proton  $\rightarrow \phi\eta$  and antiproton-proton  $\rightarrow K^+K^-\eta$  channels in antiproton-proton annihilation at rest at three hydrogen target densities", Acta Physica Polonica **B29** (1998) 2547.
- R38) **C. Petrascu** *et al.*, "Disentangling the K-complex of kaonic hydrogen with DEAR", Hyperfine Interactions **118**, 1-4 (1999) 53.
- R39) C. Guaraldo, **C. Petrascu** *et al.*, "Study of exotic atoms at the DAΦNE collider (DEAR experiment)", Roum. Journal of Phys. **43** n.8 (1998) 312.
- R40) A. Alberico, **C. Petrascu** *et al.*, "Study of the isovector scalar mesons in the channel antiproton-proton  $\rightarrow K^{+/-}K^0_S\pi^{+/-}$  at rest with initial angular momentum state selection", Phys. Lett. **B434** (1998) 180.
- R41) A. Alberico, **C. Petrascu** *et al.*, "Study of  $\phi$  and  $f_2'(1525)$  meson production in antiproton-proton annihilation at rest", Phys. Lett. **B438** (1998) 430.

- R42) N. Semprini Cesari, **C. Petrascu et al.**, ``Search for exotics at OBELIX'', Nucl. Phys. **B64** (1998) 205.
- R43) **C. Petrascu et al.**, ``The DEAR experiment at DAΦNE'',  $\pi$ N Newsletter, No. **15** (1999) 266.
- R44) S. Bianco, **C. Petrascu et al.**, ``The DEAR case'', Rivista del Nuovo Cimento **22** N.11 (1999) 1-45.
- R45) A. Filippi, **C. Petrascu et al.**, ``Study of  $\eta$  and  $\eta'$  production in antiproton-proton annihilation'', Phys. Lett. **B471** (1999) 263.
- R46) A. Filippi, **C. Petrascu et al.**, ``Study of antineutron-proton  $\rightarrow \phi\pi^+$  and antineutron-proton  $\rightarrow \omega\pi^+$  annihilation reactions in flight'', Nucl. Phys. **A655** (1999) 453c.
- R47) L. Venturelli, **C. Petrascu et al.**, ``Effects of contaminants of antiprotonic helium and possible long living states in hydrogen'', Nucl. Phys. **A655** (1999) 283c.
- R48) V. Nomokonov, **C. Petrascu et al.**, ``Measurements of the reaction antiproton-proton  $\rightarrow K^+K^-\eta$  and antiproton-proton  $\rightarrow \phi\eta$  of antiproton annihilation at rest at three hydrogen target densities'', Nucl. Phys. **A655** (1999) 243c.
- R49) S. Tessaro, **C. Petrascu et al.**, ``Antiproton-proton, antiproton-deuteron, antiproton -  $^4\text{He}$  annihilation cross sections at low-energy'', Nucl. Phys. **A655** (1999) 230c.
- R50) A. Feliciello, **C. Petrascu et al.**, ``Total and annihilation antineutron-proton cross-sections from 50 MeV/c to 400 MeV/c'', Nucl. Phys. **A655** (1999) 224c.
- R51) P. Salvini, **C. Petrascu et al.**, ``Antiproton-proton  $\rightarrow 2\pi^+2\pi^-$  annihilation at two different target densities'', Nucl. Phys. **A655** (1999) 51c.
- R52) R. Sirghi, **C. Petrascu et al.**, ``A preliminary spin parity analysis of the antiproton-proton  $\rightarrow \pi^+\pi^-\eta$  annihilation reaction at rest'', Nucl. Phys. **A655** (1999) 35c.
- R53) G. Usai, **C. Petrascu et al.**, `` $E/\tau$  decays to  $K\pi$  in 6 prong proton-antiproton annihilations'', Nucl. Phys. **A655** (1999) 23c.
- R54) O. Denisov, **C. Petrascu et al.**, ``Light baryon production in binary antiproton-deuteron annihilation reactions at rest'', Phys. Lett. **B460** (1999) 248.
- R55) A. Zenoni, **C. Petrascu et al.**, ``Antiproton-deuteron and antiproton- $^4\text{He}$  annihilation cross sections at very low-energy'', Phys. Lett. **B461** (1999) 413.
- R56) A. Zenoni, **C. Petrascu et al.**, ``New measurements of the antiproton-proton annihilation cross-section at very low-energy'', Phys. Lett. **B461** (1999) 405.
- R57) C. Cicalo', **C. Petrascu et al.**, ``Evidence for two pseudoscalar states in the 1.4 - 1.5 GeV mass region'', Phys. Lett. **B462** (1999) 453.



- R58) A. Lanaro, **C. Petrascu et al.**, "Detection of ponium with DIRAC",  $\pi$ N Newslett. No. **15** (1999) 270.
- R59) V.V. Barmin, **C. Petrascu et al.**, "Double strangeness production in antiproton-Xe annihilation at low-energy", Phys. Lett. **B464** (1999) 323.
- R60) V.V. Barmin, **C. Petrascu et al.**, "Observation of binary hyperon production reactions in antiproton-proton annihilation on nuclei at low-energy", Nucl. Phys. **A655** (1999) 161.
- R61) M. Bragadireanu, **C. Petrascu et al.**, "A prototype threshold Cherenkov counter for DIRAC", Nucl. Instrum. Meth. **A426** (1999) 254.
- R62) M.G. Sapozhnikov, **C. Petrascu et al.**, "New results from the OBELIX Collaboration on strange-particle production", Phys. Atom. Nucl. **62** (1999) 1987.
- R63) R. King, **C. Petrascu et al.**, "The DEAR case", Nucl. Phys. **A663** (2000) 561c.
- R64) S. Vecchi, **C. Petrascu et al.**, "Meson spectroscopy with the OBELIX apparatus", Nucl. Phys. **A663** (2000) 613c.
- R65) B. Lauss, **C. Petrascu et al.**, "The DEAR experiment on DAΦNE", Acta Physica Polonica **B31**, N. 10-11 (2000) 2257.
- R66) P. Gianotti, **C. Petrascu et al.**, "Test of chiral perturbation theory with DIRAC at CERN", Acta Physica Polonica **B31**, N. 10-11, (2000) 2571.
- R67) F. Iazzi, **C. Petrascu et al.**, "Antineutron proton total cross section from 50-MeV/c to 400-MeV/c", Phys. Lett. **B475** (2000) 378.
- R68) A. Bianconi, **C. Petrascu et al.**, "Measurement of cascade times of antiprotons in molecular hydrogen and helium", Phys. Lett. **B487** (2000) 224.
- R69) M. Augsburger, **C. Petrascu et al.**, "First measurements at the DAΦNE  $\phi$ -factory with the DEAR experimental setup", Nucl. Instrum. Meth. **A452** (2000) 306.
- R70) M. Augsburger, **C. Petrascu et al.**, "The DEAR case". Nucl. Phys. **A663** (2000) 561.
- R71) A. Filippi, **C. Petrascu et al.**, "An analysis of the contribution of isospin 2  $\pi\pi$  resonant states in the antineutron-proton  $\rightarrow \pi^+\pi^+\pi^-$  annihilation reaction", Phys. Lett. **B495** (2000) 284.
- R72) F. Gomez, **C. Petrascu et al.**, "DIRAC Experiment", Nucl. Phys. **B96** (2001) 259.
- R73) V.V. Barmin, **C. Petrascu et al.**, "Evidence of elementary processes for hyperon production in low-energy antiproton annihilation on Xenon nuclei", Nucl. Phys. **A683** (2001) 305.

- R74) G. Bendiscioli, **C. Petrascu** *et al.*, "Contribution from S and P waves in antiproton-proton annihilation at rest", Nucl. Phys. **A686** (2001) 317.
- R75) N. Semprini-Cesari, **C. Petrascu** *et al.*, "Recent results on scalars from LEAR PS-201", Nucl. Phys. **B96** (2001) 229.
- R76) E. Lodi Rizzini, **C. Petrascu** *et al.*, "On the formation and decay of the antiproton-He<sup>+</sup> atomcule", Phys. Lett. **B507** (2001) 19.
- R77) E. Lodi Rizzini, **C. Petrascu** *et al.*, "Antiprotons stopping in Xenon", Phys. Lett. **B513** (2001) 265.
- R78) C. Guaraldo, **C. Petrascu** *et al.*, "The DEAR experiment on DAΦNE", Nuclear Physics **A691** (2001) 278c.
- R79) M. Bargiotti, **C. Petrascu** *et al.*, "Protonium annihilation into  $\pi^0\pi^0$  at rest in a liquid hydrogen target", Phys. Rev. **D65** (2002) 012001.
- R80) O.E. Gorchakov, **C. Petrascu** *et al.*, "Measurement of the antiproton-deuteron  $\rightarrow \phi n$  Pontecorvo reaction for antiproton annihilation at rest", Phys. Lett. **B528** (2002) 34.
- R81) P. Montagna, **C. Petrascu** *et al.*, "Single and multinucleon antiproton-<sup>4</sup>He annihilation at rest", Nucl. Phys. **A700** (2002) 159.
- R82) G. Beer, **C. Petrascu** *et al.*, "A new method to obtain a precise value of the mass of the charged kaon", Phys. Lett. **B535** (2002) 52.
- R83) A.M. Rodriguez Fernandez, **C. Petrascu** *et al.*, "The DIRAC experiment at CERN: current status and future perspectives",  $\pi$ N Newsletter, No. 16 (2002) 352.
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Frascati, August 12th , 2020

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## Curriculum Vitae of Francesco Terranova

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I have been working in experimental neutrino physics since about 20 years giving significant contributions to the construction, running and data analysis of OPERA (observation of tau neutrino appearance in a long baseline experiment), CUORE (search for neutrinoless double beta decay with bolometers) and inventing the concept of “monitored neutrino beam”. My contributions to the field also include studies on novel neutrino sources (beta beams, neutrino factory and tagged neutrino beams) and R&D on single phase liquid argon TPC.

### Main areas of research

Electroweak physics at  $e^+e^-$  colliders: **DELPHI** at LEP [1994-2001]  
Hadro-production experiments: **NA56/SPY** at SPS [1995-1997]  
Neutrino Oscillation Experiments: **OPERA** [2001-2011], **DUNE** [2018-present]  
Neutrino-less double beta decay: **CUORE** [2012-present]  
R&D's: **Liquid Argon TPC** [1997-1999]) Beta Beams, Neutrino Factories (**BENE** [2004-2008], **EUROnu** [2008-2012]), Monitored Neutrino Beams (**SCENTT** and **NP06/ENUBET** [2016-present])

### Coordination of Research Projects (selection)

2000-2001 **Physics Convener** of the Trilinear Gauge Coupling working group at DELPHI  
2004-2011 INFN Group Leader at LNF (Frascati) for BENE-INFN  
2005-2008 **Project Leader** of the magnets for the OPERA experiments  
2006-2011 INFN Group Leader at LNF (Frascati) for OPERA  
2006-2007 **Run Coordinator** of OPERA during the start-up of the CNGS  
2007-2008 **Technical Coordinator** of the electronic detectors for the OPERA experiment  
2007-2011 Member of the **Executive Board** of the OPERA Experiment  
2009-2011 **Deputy Spokesperson** of the OPERA experiment  
2011-2014 Member of the **Technical Board** of the CUORE experiment and coordinator of the cryostat construction during the Phase I  
2014-2018 Member of the **Executive Board** of the CUORE experiment  
2016-present **Principal Investigator** of the INFN SCENTT and ENUBET\_2 Project  
2019-present **National Representative** in the DUNE PDS Management Board  
2019-present **Spokesperson** of the CERN NP06/ENUBET experiment

### Boards (selection)

2008-2011 Member of the INFN **Funding Committee** for Astroparticle Physics (Commissione Scientifica Nazionale II).  
2009-2011 Ex-officio member of the **Collaboration Board** of OPERA.

2010-2012 Member of the MICE Trans-National Access (TNA) board

2013-2016 Member of the Ionisation Cooling Test Facility Applications Panel for EuCARD-2

2016-present member of the **Management Committee** of the COST Action EuroNuNet

2016-2019 Member of the CERN Proto-Synchrotron (PS) and Super-Proton-Synchrotron (SPS) **Scientific Committee (SPSC)**

2018-present National coordinator and member of the **Governing Board** of ESSnuSB (call: H2020-INFRADEV-2017-1)

2019-present member of the DUNE **Institutional Board**

### **Summary of scientific publications**

Author of 401 papers in the InSPIRE database (353 citable, 225 published in peer reviewed journals)

Total number of citations (citeable papers): 13950

Average citations per paper: 39.5

H-index: InSPIRE 60

Milano, 26 August 2020