

# Curriculum Vitae of Fabio Bellini

## Part I - General Information

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|-----------|---------------|
| Full Name | Fabio Bellini |
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## Important scientific and Coordination roles in the last five years

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| Years          | Title  |
|----------------|--|
| 2019 -present  | <b>Elected Coordinator for Rome Division in the INFN- CSN2 Astroparticle Physics Committee (re-appointed for the second mandate on 21.06.2022)</b> |
| 2019 - present | <b>National INFN PI of the CUPID Experiment (INFN-CSN2)</b>  |
| 2021 - present | <b>Elected Member of the CUPID Executive Board</b>   |
| 2021 - present | <b>Elected CUPID Italy Chief Scientist/Project Director</b>  |
| 2017 - 2023    | <b>Representative of INFN in the CUPID-Mo Collaboration Board</b>  |
| 2015-2020      | <b>Technical Coordinator of the CUPID-0 Experiment</b>   |

## Part II - Education

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| Type                       | Year       | Institution                        | Thesis/Mark   |
|----------------------------|------------|------------------------------------|---|
| PhD Graduation             | 29.01.2004 | “Sapienza” Univ. of Rome           | “Measurement of $b \rightarrow s \gamma$ Branching Ratio Studying the Recoil of Fully Reconstructed Bs with the BaBar Experiment” |
| PhD XVI ciclo              | 2000-2003  | Stanford Linear Accelerator Center | About 1.5 year with the Babar experiment at SLAC  |
| Master’s Degree in Physics | 19.07.2000 | Univ. of Rome “Roma Tre”           | “Misura della Sezione d'urto di rigenerazione di mesoni K neutri di impulso 110 MeV/c”<br>110/110 cum laude                       |
| High School Graduation     | 1995       | Liceo Scientifico “A. Labriola”    | 60/60 cum laude   |

## Part III - Appointments

### Academic appointments

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| Start | End | Institution | Position |
|-------|-----|-------------|----------|
|-------|-----|-------------|----------|

|            |            |   |  |
|------------|------------|---|--|
| 14.02.2023 | present    | Second-level University Master's Degree in Ionizing Radiation Protection: ProRadion | <b>Member of Didactic and Scientific Board and Promoter</b>                        |
| 07.10.2022 | present    | ISAPP (International School on AstroParticle Physics -European Doctorate School)    | Sapienza PhD School <b>Representative</b> in the <b>ISAPP Scientific committee</b> |
| 01.11.2021 | present    | “Sapienza” Univ. of Rome  | <b>Member of the scientific board of the PhD Program in Physics</b>                |
| 01.10.2015 | present    | “Sapienza” Univ. of Rome  | <b>Associate Professor</b>   |
| 01.01.2010 | present    | National Institute Nuclear Physics (INFN)   | <b>Incarico di Ricerca</b>   |
| 30.12.2008 | 30.09.2015 | “Sapienza” Univ. of Rome  | <b>Assistant Professor</b>   |
| 07.11.2006 | 06.11.2008 | INFN  | <b>Research Fellow (Assegno di Ricerca)</b>  |
| 01.10.2006 | 31.10.2006 | Univ. of Rome “Tor Vergata”   | Contratto di Collaborazione  |
| 15.07.2006 | 30.09.2006 | Univ. of Milano Bicocca   | Contratto di Collaborazione  |
| 01.06.2004 | 31.05.2006 | “Sapienza” Univ. of Rome  | <b>Research Fellow (Assegno di Ricerca)</b>  |
| 02.2004    | 05.2004    | Fondazione Angelo Della Riccia  | <b>Grant for research at SLAC (Stanford Linear Accelerator Center)</b>             |

#### Abilitazioni

| Start      | End        | Institution   | Position                                    |
|------------|------------|---|---|
| 05.10.2018 | 05.10.2029 | MIUR (Ministry of Education, Universities and Research) | ASN Prof. I fascia SC02/A1-SSD FIS/01       |
| 28.11.2014 | 28.11.2023 | MIUR (Ministry of Education, Universities and Research) | ASN 2013 Prof. II fascia SC02/A1-SSD FIS/01 |
| 23.01.2014 | 23.01.2023 | MIUR (Ministry of Education, Universities and Research) | ASN 2012 Prof. II fascia SC02/A1-SSD FIS/01 |

#### Part IV - Teaching experience

My teaching activity has been focused on fundamental basic physics courses for the Bachelor's degree in Physics (mechanics, laboratory of mechanics, nuclear and subnuclear physics). Concurrently, I have given lectures on Detectors and AstroParticle Physics in the Master's degree courses in Physics, in excellence and PhD program. I am among the promoters and a member of the interfaculty board of the Second-level University Master's Degree in Ionizing Radiation Protection “ProRadion”.

All courses refer to the Sapienza Physics Department unless otherwise specified.

| Academic Year                     | Course  |
|-----------------------------------|---|
| 22/23,23/24                       | <b>Nuclear and SubNuclear Physics (6 CFU, ~80 students)</b>   |
| 19/20,20/21,21/22,<br>22/23,23/24 | <b>Mechanics (12 CFU=120 hours, ~100 students)</b>  |
| 24                                | Lectures on Principles of Atomic and Nuclear Physics, Nuclear decays and Matter-Radiation Interaction for “ProRadion” (Second-level University Master's Degree) |

|                                    |   |
|------------------------------------|---|
| 20/21                              | Physics (Drug Science and Technology Dep.) (Teaching Assistant: 2 CFU)  |
| 18/19,19/20,20/21,<br>21//22       | Particle Physics: Lecture on “AstroParticle Physics @ INFN Rome”  |
| 19/20                              | Laboratory of Mechanics ( Teaching Assistant 3 CFU, 80-100 students)  |
| 18/19                              | Mechanics (Teaching Assistant: 6 CFU)   |
| 18/19                              | Percorso di Eccellenza: Lectures on “Metodi statistici per l’analisi dei risultati sperimentali”  |
| 15/16,16/17,<br>17/18,18/19        | <b>Laboratory of Mechanics (12 CFU, 80-100 students), “Riconoscimento eccellente insegnamento universitario A.A. 2017/18” assigned to one of the three most voted teachers in the Physics Department (&lt;5%)</b> |
| 17/18,18/19                        | Detectors for Particle Physics (Master's degree): Lecture on “Detectors for Physics at Gran Sasso Laboratory”   |
| 15/16,16/17                        | Nuclear Physics ((Master's degree): Lectures on “BBN & Stellar Nucleosynthesis and Neutrinoless Double Beta Decay Search” (Master's degree)   |
| 12/13,13/14, 14/15                 | Physics (Drug Science and Technology Dep.) (8 CFU,80-100 students)  |
| 12/13,13/14,14/15,<br>15/16, 16/17 | Lectures for high School students for the preparation to the Physics Olympics   |
| 10/11,11/12,12/13,<br>13/14,14/15  | Elementary Particles Physics (Master's degree): Lectures on “Neutrino Physics”  |
| 11/12                              | Mechanics (Teaching Assistant)  |
| 11/12                              | PhD in Physics XXVII cycle: “Neutrino Physics” Course   |
| 10/11                              | Nuclear and SubNuclear Physics II (Master's degree): Lectures on “Neutrino Physics”   |
| 09/10,10/11,11/12                  | High Energy Physics Laboratory (Master's degree): Responsible for the experience “Scintillating crystals light yield vs temp”   |
| 08/09, 09/10,11/12                 | Physics (Drug Science and Technology Dep.): Teaching Assistant  |
| 09/10,10/11                        | Nuclear and SubNuclear Physics III: Tutor of short theses   |
| 09/10                              | Laboratory of Electromagnetism and Circuits: Teaching Assistant   |
| 04/05,06/07,07/08                  | Laboratory of Electromagnetism and Circuits: Teaching Assistant - lezioni di supporto alla didattica  |
| 05/06                              | Laboratory of Instruments and Measurement Methods (Engineering Dep.):Teaching Assistant -lezioni di supporto alla didattica   |
| 05/06                              | Computer Science Laboratory (Drug Science and Technology Dep.): Teaching Assistant - lezioni di supporto alla didattica   |
| 02/03                              | Physics (Drug Science and Technology Dep.): Teaching Assistant  |
| 01/02                              | General Physics I (Mathematics Dep.): Teaching Assistant  |
| 00/01                              | General Physics I (Physics Dep. Univ. of Roma Tre): Teaching Assistant  |

### Evaluation of the teaching by students (OPIS, last 9 years)

| Course                             | Year | Questions & answers   |  |   |
|------------------------------------|------|---|--|---|
|                                    |      | Il docente stimola/<br>motiva l'interesse<br>verso la disciplina? | Il docente espone gli<br>argomenti in modo chiaro? | Sono complessivamente<br>soddisfatto di come è svolto<br>questo insegnamento? |
| Decisamento no=1, Decisamento si=4 |      |   |  |   |

|  |       |                                    |            |            |            |
|--|-------|------------------------------------|------------|------------|------------|
| Meccanica<br>(116 answers)                   | 23-24 | Bellini (media<br>Corso di Studio) | 3.79(3.25) | 3.66(3.14) | 3.65(3.17) |
| FNS<br>(62 answers)                          | 23-24 | Bellini (media<br>Corso di Studio) | 3.48(3.25) | 3.11(3.14) | 3.17(3.17) |
| Meccanica<br>(97 answers)                    | 22-23 | Bellini (media<br>Corso di Studio) | 3.79(3.18) | 3.55(3.10) | 3.57(3.09) |
| Meccanica<br>(91 answers)                    | 21-22 | Bellini (media<br>CdS)             | 3.53(3.23) | 3.34(3.14) | 3.32(3.11) |
| Meccanica<br>(77 answers)                    | 20-21 | Bellini (media<br>CdS)             | 3.74(3.18) | 3.38(3.10) | 3.57(3.10) |
| Meccanica<br>(80 answers)                    | 19-20 | Bellini (media<br>CdS)             | 3.63(3.20) | 3.39(3.11) | 3.39(3.11) |
| Laboratorio di<br>Meccanica<br>(77 answers)  | 18-19 | Bellini (media<br>CdS)             | 3.48(3.16) | 3.21(3.04) | 3.21(3.08) |
| Laboratorio di<br>Meccanica<br>(118 answers) | 17-18 | Bellini (media<br>CdS)             | 3.36(3.15) | 3.17(3.06) | 3.27(3.07) |
| Laboratorio di<br>Meccanica<br>(70 answers)  | 16-17 | Bellini (media<br>CdS)             | 3.67(3.18) | 3.19(3.06) | 3.40(3.11) |
| Laboratorio di<br>Meccanica<br>(81 answers)  | 15-16 | Bellini (media<br>CdS)             | 3.48(3.17) | 3.33(3.12) | 3.30(3.13) |

### Lecture Notes/Books

Libro/Dispense "Laboratorio di meccanica" G.D'Agostini, F.Bellini, A. Messina available at [link](#)

### Part V - Scientific and society membership, Awards and Honours

| Year            | Title   |
|-----------------|---|
| 23.04.2018      | <b>"Riconoscimento eccellente insegnamento universitario A.A. 2017/18" assigned to one of the three most voted teachers in the Physics Department (&lt;5%) <a href="#">link</a></b> |
| 2.2005-present  | Gran Sasso National Laboratories scientific user/associate  |
| 04.2001-04.2008 | Stanford Linear Accelerator Center scientific user/associate  |
| 2004            | <b>Grant "Fondazione Angelo Della Riccia" for research in a foreign laboratory (Stanford Linear Accelerator Center)</b>   |

|                 |   |
|-----------------|---|
| 2001            | Winner of the competition for the <b>best four Master's Degree thesis awards</b> , Comune di Roma sponsored by the European Parliament and the Presidency of the Republic |
| 09.1999-07.2000 | Frascati National Laboratories scientific user/associate  |
| 2000            | <b>Grant "Enrico Persico", Accademia Nazionale dei Lincei</b>   |
| 1998            | <b>Grant "Enrico Persico", Accademia Nazionale dei Lincei</b>   |

## Part VI - Funding Information

| Year                     | Role  | Agency/Program  | Grant Value (k€) |
|--------------------------|---|---|------------------|
| 06.05.2019-present       | <b>Coordinator of the INFN National Scientific Committee 2 (CSN2) - Rome division</b> | INFN  | <b>~450</b>      |
| 2021 - present           | <b>PI (Responsabile Nazionale)</b>  | INFN/CUORE_CUPID  | <b>~2800</b>     |
| 2021-2023                | Scientific Coordinator  | MUR co-fund for RTD-A Green   | 120              |
| 2020                     | PI  | Sapienza Univ. of Rome/Bolometers optimisation  | 12               |
| 2019-2020                | <b>PI (Responsabile Nazionale)</b>  | INFN/CUPID  | <b>435</b>       |
| 2019                     | <b>PI-Rome</b>  | MIUR/PRIN 2017: Advanced techniques for a next generation cryogenic Double Beta Decay experiment.   | <b>244</b>       |
| 2016-2019                | <b>PI-Rome</b>  | INFN/CUPID-0  | <b>189</b>       |
| 2018                     | PI  | Sapienza Univ. of Rome/Cryogenic Calorimeter Characterisation   | 12               |
| 2014                     | <b>PI</b>   | Sapienza Univ. of Rome/Grant for Equipments for Interdepartmental Researches: cryogenic setup   | <b>100</b>       |
| 2014                     | PI  | Sapienza Univ. of Rome/Thin film characterisation for light yield optimisation in cryogenic detectors   | 13               |
| 2013                     | PI  | Sapienza Univ. of Rome/Intraoperative probe for brain tumour surgery  | 12               |
| 2013                     | PI  | Sapienza Univ. of Rome/Assignment of "Assegno di Ricerca" for young coordinators of research projects (Intraoperative probe for brain tumour surgery) | 22               |
| 21.03.2013<br>21.03-2017 | <b>PI-Rome</b>  | MIUR/FIRB 2012: Cryogenic light detector development  | <b>244</b>       |
| 01.02.2013<br>01.02-2016 | <b>PI-Rome</b>  | MIUR/PRIN 2010-11: Low radioactivity detector R&D   | <b>142</b>       |
| 2012                     | PI  | Sapienza Univ. of Rome/Light characterisation of TeO <sub>2</sub> Cherenkov light   | 12               |
| 2011                     | PI  | Sapienza Univ. of Rome/Optical properties study in crystals for the 0νββ search   | 15               |
| 2011-2016<br>(2013-2016) | <b>Rome PI (National PI)</b>  | INFN/LUCIFER-RD   | <b>89</b>        |

2004

PI

Grant "Fondazione Angelo Della Riccia" for research in a foreign laboratory (SLAC)

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**Total****~4.91 M€**

## Part VII - Scientific and Academic Activities

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### Part VIIA - Institutional Responsibilities

I have held various roles within the Department. The most significant are: **President** of the **Research Products Committee** during the first VQR, **Representative** of the **Nuclear & Subnuclear Physics** curriculum of the "Laurea Magistrale LM-17" in the Didactic Planning Committee, **President of the "Didactic Planning Committee"** for the entire Physics Department (~120 professors, ~220 courses at Sapienza) for 4 years, **responsabile** of a research laboratory. I'm currently member of the **Scientific Board** of the **PhD Program in Physics** and member of the **Interfaculty Board** of a **second-level master's program**.

### Institutional Committee coordination and membership

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| Years                 | Title  |
|-----------------------|--|
| 2024-present          | Member of "Commissione di Gestione dell'Assicurazione Qualità del Dipartimento di Fisica" for the PhD school in Physics  |
| 14.02.2023-present    | <b>Member of Didactic and Scientific Board</b> Second-level University Master's Degree in Ionizing Radiation Protection: ProRadion   |
| 17.03.2022-27.03.2024 | Member of the Gender Equality Plan Committee   |
| 01.11.2021-present    | <b>Member of the scientific board of the PhD Program in Physics</b>  |
| 2021                  | Member of the committee for "Procedura valutativa di chiamata Professore Associato" DD211/2021   |
| 2019-present          | <b>Responsible</b> of the Joint INFN-Sapienza Laboratory ULTRA (Ultra Low Temperature and Radioactivity). The refurbishment of the cryogenic facility, currently ongoing, will allow for an expansion of the research field on the development of cryogenic light detectors & superconducting qubits |
| 21.11.2018-14.09.2023 | Member of "Commissione di Gestione dell'Assicurazione Qualità del Dipartimento di Fisica"  |
| 2019                  | <b>Member of the team selected by Physics Department for the "Accreditamento ANVUR" visit</b>  |
| 25.01.2018-11.11.2021 | <b>President of the "Commissione della pianificazione didattica" for the Physics Department (~120 professors, ~220 courses in Sapienza) Academic years 18/19,19/20,20/21,21/22</b>   |
| 22.02.2017-11.11.2021 | <b>Elected</b> Member of the Commissione Coordinamento Area Didattica in "Scienze e Tecnologie Fisiche, Scienze Fisiche e Scienze dell'Universo"   |
| 2016-2019             | Co-Responsible of "Laboratory of cryogenic detectors"  |
| 20.04.2015-20.05.2018 | <b>Representative of the Nuclear &amp; Subnuclear Physics (now Particle and AstroParticle Physics) curriculum of the "Laurea Magistrale LM-17" in the didactic planning committee</b>  |
| 20.04.2015-20.05.2018 | Member of the committee for master's degree student teaching plan approval   |
| 2015                  | <b>Contact person</b> for the VQR 2011-2014 & IRIS Database for the Physics Department   |
| 10.12.2014-01.02.2018 | <b>President of the Research Products Committee &amp; member of the Research Resources Committee for the Physics Department</b>  |
| 01.12.14-31.12.2018   | Co-Responsible of the Didactics/Research Activity (RADRL) for the Laboratory MQC /Calder L012-S03  |

|                 |   |
|-----------------|---|
| 2014            | Member of the Admission Competition Committee of the “Tirocinio Formativo Attivo” Classe A038 |
| 09.2013-11.2015 | <b>Elected Representative of Researchers in “Giunta di Facoltà SMFN-Sapienza”</b>             |
| 04.2013-11.2015 | <b>Elected Representative of Researchers in “Giunta del Dipartimento di Fisica-Sapienza”</b>  |
| 2012            | Member of the Admission Competition Committee of the “Tirocinio Formativo Attivo” Classe A059 |
| 2011-2012       | <b>Contact person VQR2004-2010 for both Sapienza Physics Department and INFN Rome</b>         |
| 2009-2018       | Atheneum Research Products Database Contact person  |
| 2009-present    | Member of several committees of research fellowships (Assegni di Ricerca)                     |

## PhD defence committee and PhD external referee

| Years | Title   |
|-------|---|
| 2024  | <b>Member of jury</b> for Doctoral School Technische Universität Wien and external supervisor of the PhD Thesis “Sub-GeV Dark Matter Studies and Universal Bound States Exploration with CRESST-III”, S. Gupta  |
| 2023  | <b>Member of the PhD admission committee in Physics Sapienza University (Ciclo XXXIX )</b>  |
| 2021  | <b>Member of jury</b> for final exam of PhD in Physics at Genova University (Ciclo XXXIII)  |
| 2021  | Substitute Member of jury for final exam of PhD in Physics at Padova University (Ciclo XXXIII)  |
| 2020  | Referee of the PhD Thesis “Exploring the Inelastic Dark Matter frontier with the CRESST experiment”, M. Olmi GSSI (Gran Sasso Science Institute Ciclo XXXII)  |
| 2018  | <b>Member of jury</b> for Doctoral School Université Paris Saclay en Physique de particules (2018) and examinateur of the PhD Thesis “Study and selection of scintillating crystals for the bolometric search for neutrinoless double beta decay”, A. Zolotarova  |
| 2018  | Substitute Member of jury for final exam of PhD in Physics at Genova University (Ciclo XXX) and Catania (Ciclo XXX)   |
| 2017  | <b>Member of jury</b> for final exam of PhD in Physics at Sapienza University (Ciclo XXIX)  |
| 2017  | <b>Member of the PhD admission committee in Physics Sapienza University (Ciclo XXXIII )</b>   |
| 2017  | Referee(Examiner) of PhD thesis “Electronic Instrumentations for High Energy Particle Physics and Neutrino Physics” P.Carniti. Milano Bicocca University (Ciclo XXX)  |
| 2016  | <b>Member of jury</b> for final exam of PhD in Physics at Padova University (Ciclo XXVIII)  |
| 2016  | Rapporteur of the PhD Thesis “Development and optimization of scintillating bolometers and innovative light detectors for the search for neutrinoless double beta decay” M.Mancuso and <b>member of jury</b> for the Doctoral School (Particles, Hadrons, Energy, Nuclei, Instrumentation, Imaging, Cosmos et Simulation) Paris 11, Orsay |

## Part VIIB - Summary of Research activities

Since the beginning of my research activity I have been working on experimental particle physics. In my Master’s Degree thesis I produced one of the **first measurements** on the regeneration of K mesons in the experiment for the search of CP violation in K decays at LNF.

During my PhD I joined the International Babar Collaboration (~500 members) at SLAC to search for CP violation and rare decays in the B meson system. In this context, I focused on measurements of rare radiative decays ( $\mathbf{b} \rightarrow \mathbf{s}\gamma$ ), which are highly sensitive probes for physics beyond the Standard Model. I was the first to introduce for the technique of searching for such decays in the recoil of a fully reconstructed B meson. This technique still represent today the most widely used in current experiments (e.g., BELLE II) due to its ability to completely reconstruct the final state and minimize systematic uncertainties.

In parallel, I become an expert of the muon identification system detector made of **Resistive Plate Chambers** where I studied the ageing of such detectors with a view to their extensive use in LHC experiments.

Subsequently, my interest shifted to physics beyond the Standard Model, particularly the search for the **Majorana neutrino** using cryogenic calorimeters. I joined the CUORICINO collaboration in 2009 and its evolution, **CUORE**, an experiment still in data taking. I proposed and contributed to the development of the software/computing infrastructure for analysis and the automatic data quality control system.

I took on various leadership roles, conducted several simulations and analyses (including the main analysis of the neutrinoless double beta decay of  $^{130}\text{Te}$ ), and coordinated the construction and operation of a the muon veto for CUORICINO and other cryogenic prototypes.

I have been the **representative** of the Sapienza-INFN Roma group in the CUORE Collaboration Board for more than a decade and the chair of the Measurement Coordination Panel of the AstroParticle European Research Network.

In parallel, given my experience in low-energy experiment shielding simulations, I dedicated part of my time to the design of shielding for medical physics apparatus and the development of a probe for **medical applications**.

Developing **novel cryogenic detectors** for the double beta decay search has been my goal for the past 10 years. I have coordinated and promoted the development of scintillating bolometers through several grants, leading to demonstrators (LUCIFER/CUPID-0) with the best background results in the world. This process culminated in the proposal of a next-generation experiment called **CUPID** at the Gran Sasso National Laboratories. The experiment was approved by CSN2 (INFN's flagship experiment) and it's now one of the recommended experiments by APPEC (Astroparticle Physics European Consortium).

I am currently the **National Coordinator** of the project, which involves around **85 people** across various sites (Bo, Ge, LNF, LNGS, LNL, PD, PV, RM1, RM2) and **Italy Chief Scientist/Project Director**.

Meanwhile, I'm involved also in the refurbishing the cryostat of the Joint INFN-Sapienza Lab **ULTRA** (of which I am co-responsible) to expand research into the development of new light detectors and superconducting qubits.

Recently, given my experience in low radioactivity physics, I have undertaken joint research projects with a company operating in the field of **environmental monitoring** to develop new measurement systems for radon and fossil carbon component measurement (patent under evaluation).

## Scientific and Research Committee coordination and membership

| Years                    | Title  |
|--------------------------|--|
| 01.07.2019<br>present    | <b>Elected Coordinator for Rome Division in the INFN- CSN2 Astroparticle Physics Committee (re-appointed for the second mandate on 21.06.2022)</b> |
| 01.11.2022<br>present    | Member of Rome Technopole PNRR project Spoke5/FG1 “Decarbonization and digitalization in research on new green energy sources”                     |
| 28.05.2021<br>present    | <b>Elected Member of the CUPID Executive Board</b>   |
| 28.05.2021<br>present    | <b>Elected CUPID Italy Chief Scientist/Project Director</b>  |
| 10.11.2020<br>01.10.2022 | <b>Elected Member of the CUPID Speaker Board</b>   |
| 14.07.2019<br>present    | <b>National INFN PI of the CUPID Experiment (INFN-CSN2)</b>  |
| 01.07.2019<br>02.08.2023 | <b>Observer</b> on behalf of the CSN2 in the INFN-CSN1 Particle Physics Committee  |
| 10.11.2018<br>10.11.2020 | <b>Elected Member</b> of the CUORE Speaker Board   |
| 2017-present             | <b>Representative of INFN in the CUPID-Mo Collaboration Board</b>  |
| 28.02.2017-2020          | Computing and networking <b>system administrator</b> for CUPID-0 at LNGS   |



|                          |   |
|--------------------------|---|
| 26.03.2018<br>28.02.2020 | <b>LNGS CUPID-0 Site manager</b>  |
| 01.10.2015<br>28.02.2020 | <b>Technical Coordinator of the CUPID-0 Experiment</b>  |
| 01.10.2015<br>14.07.2019 | <b>PI of the CUPID-0 Rome group (INFN-CSN2)</b>   |
| 2014-2021                | Member of the CUORE-I(nverted)H(ierarchy)E(xplorer) <b>Steering Committee</b> (later CUPID)   |
| 2012-2014                | <b>Chair of the “Isotta” Measurement Coordination Panel (AstroParticle European Research Area Network)</b>  |
| 2011-2015                | <b>National INFN PI (from 2013) and Rome Unit PI of LUCIFER-RD (INFN-CSN2)</b>  |
| 2011-2015                | <b>LUCIFER coordinator of data analysis</b>   |
| 2011-2024                | <b>Representative of the Sapienza/INFN-Roma group in the CUORE council</b>  |
| 05.2012-10.2014          | <b>Chair of the CUORE Publication Board</b>   |
| 09.2010-05.2012          | Member of the CUORE Vetting Board   |
| 2009-2017                | <b>Manager of the CUORE Computing Cluster Center</b>  |
| 2013                     | <b>Responsible for the simulation of the neutron shields for the TOP-IMPLART project</b>  |
| 2010-2011                | <b>Supervisor</b> of the analysis of the contaminations and bolometric performances of the first half (500-INFN funded) CUORE crystals            |
| 2009-2010                | CUORICINO Data Production <b>Coordinator</b>  |
| 2007-2008                | <b>In charge of the CUORICINO data taking quality, integrity and prompt reconstruction.</b>   |
| 2007-2008                | <b>Coordinator of the CUORE muon identification system</b>  |
| 2006-2007                | <b>In charge of Monte Carlo simulation of muon and neutron induced background in CUORE</b>  |
| 2005-2008                | <b>Responsible for Data Management of CUORICINO</b>   |
| 2004                     | <b>Operation Manager of the BaBar muon and neutral hadrons identification system</b>  |
| 2001-2002                | <b>In charge</b> of the development of algorithms for the $\gamma/\pi^0$ identification and reconstruction efficiencies in the BaBar calorimeter. |

## Details of Research Activities

To shorten the keywords and the descriptions I will use the following acronyms:

- CUPID: CUORE Upgrade with Particle Identification (International Collaboration (I.C.) ~160 members): next generation  $0\nu\beta\beta$  experiment.
- CUORE: Cryogenic Underground Experiment for Rare Events, search for the Majorana neutrino through the  $0\nu\beta\beta$  decay. In data taking. I.C.~120 members.
- CUORICINO/CUORE-0: predecessor/CUORE demonstrator.
- CUPID-Mo: second CUPID demonstrator. I.C.~80 members.
- CUPID-0: first CUPID demonstrator. I.C.~60 members (LUCIFER follow-up).
- LUCIFER-RD: Low-background Underground Cryogenic Installation For Elusive Rates:  $0\nu\beta\beta$  search with ZnSe scintillating bolometers. INFN-group related to the Advanced ERC n. 247115. I.C.~30 members;
- The aforementioned experiments are/were located at the Gran Sasso National Laboratories (LNGS) with the exception of CUPID-Mo (Modane Underground Lab., Frejus)
- ISOTTA: Isot(ope) Trace Analysis. Project funded in the framework of the ASPERA (AstroParticle European Research Area Network) 2nd Common Call for R&D Activities
- FIRB2012: development of large area cryogenic light detectors with high energy resolution;
- PRIN2017: advanced techniques for a next generation cryogenic Double Beta Decay experiment;
- PRIN2011: low radioactivity detector R&D mainly for  $0\nu\beta\beta$  search;
- ARPG: Applied Radiation Physics Group. Applications of particle physics in medical physics;
- BABAR: BaBar experiment on CP violation in B decays at the Stanford Linear Acceleration Center;

-KLOE: K Long experiment for the CP violation in K decays at the Laboratori Nazionali di Frascati;

The 16 Selected Publications are referred as SP[n°].

| Year               | Keywords                                      | Description   |
|--------------------|---|---|
| 02.2023-present    | Master<br>Ionizing<br>Radiation<br>Protection | <b>Member of Didactic and Scientific Board and one of the proponents of a Second-level University Master's Degree in Ionizing Radiation Protection "ProRadion".</b><br>The Master aims to train professionals capable of operating in the assessment and protection of risks arising from the use of ionizing radiation, both in the workplace and in daily life. Upon completion of the program, these professionals will be eligible to apply for registration in the national list of Radiation Protection Experts   |
| 12.2021-present    | Carbon<br>footprint                           | I obtained a <b>Green RTD-A position</b> , co-funded by MUR, for the development and optimisation of a method of monitoring greenhouse gas emissions based on the capability to detect CO <sub>2</sub> from fossil fuels given by precise measurements of <sup>14</sup> CO <sub>2</sub> . The method is based on the liquid scintillation technique, an indirect method to measure <sup>14</sup> C beta particles derived spectrum and on the fact that carbon derived from fossil sources is free of the radioactive isotope <sup>14</sup> C due to its complete decay. The research is carried out with L.B. Servizi per le Aziende Company. We are developing a new method for the <sup>14</sup> CO <sub>2</sub> and a patent is under evaluation. |
| 05.2022-present    | Envinromental<br>monitoring                   | I obtained a Regional Grant: Innovative research doctorate to be carried out in collaboration with industrial partners.<br>We are developing, in collaboration with L.B. Servizi per le Aziende Company, new dosimetry techniques, based on the use of passive track detectors and thermoluminescence detectors using liquid scintillation and spectrophotometry techniques, and optimizing their application for environmental monitoring purposes.  |
| 01.07.2019-present | CSN2 Rome<br>Coordinator                      | The INFN Commissione Scientifica Nazionale 2 (CSN2) is responsible for the scientific and financial/resource planning and assignment for the AstroParticle physics (Total annual budget ~14 M€). <b>The Rome division, the largest in the INFN, comprises ~20 experiments for a total annual budget of ~1M€ and involves ~140 researchers</b> . I have been <b>Elected Coordinator for Rome</b> thanks to my wide experience in the field.  |

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| 2018-present    | CUPID     | <p>CUPID is an experiment (~160 collaborators) designed for the discovery of the Majorana Neutrino in the Inverted Hierarchy Scenario of neutrino masses. It's a INFN flagship experiment and it has been approved in April 2022. The estimated total core cost is ~40M€ (~60%INFN funded). After the signature of the collaboration agreement on May 2021 I was elected as <b>Executive Board (EB) member</b> and <b>Italy Chief Scientist/Project Director</b>.</p> <p>The EB is the body responsible for setting technical objectives and priorities; it establishes procedures for making technical choices and oversees progress and developments. The Project Director, during the construction phase of the experiment, is in charge of the overall management of the country's project scope. The Italian scope includes: isotope procurement, crystal production, detector parts procurement, cleaning and assembly line, storage and logistics, CUORE cryostat and infrastructure upgrade, electronics, radio purity screening and crystals validation runs. In the period 2018-2021 (before the formal CUPID Collaboration establishment) I was member of the CUPID <b>steering committee</b> and <b>main editor</b> of the Conceptual Design Report <a href="https://arxiv.org/abs/1907.09376">arXiv:1907.09376</a>.</p> <p>Since Jul 2019 I'm the <b>National INFN PI</b>, (~85 Italian members). Starting from the 2022 CUORE and CUPID merged in a single INFN "<i>sigla</i>": CUORE_CUPID. I'm one of the <b>main editors</b> of the CUPID <b>Technical Design Report TDR</b> <a href="#">link</a> that was approved by the CSN2 and LNGS scientific Committee in 2022. The reliability of the CUPID projections relies on the performance of the demonstrator <b>SP[11] Phys. Rev. Lett. 126(18), 181802 2021</b> and the deep knowledge of CUORE infrastructure.</p> <p>As Italian PI I Strive to <b>secure fundings</b> and strengthen relationships with international collaborators and Chinese <b>crystal/isotope producers</b>.</p> <p>I contributed to Fundamental Symmetries, Neutrons, and Neutrinos (FSNN): White paper for the 2023 NSAC Long Range Plan <a href="https://arxiv.org/pdf/2304.03451">https://arxiv.org/pdf/2304.03451</a>.</p> <p>Research Fellows, hired on my funds, and a PhD student, under my supervision, have the responsibility of the crystal validation runs, the development of algorithms for the pile-up rejection and the analysis of the single detector model that were published in <b>SP[14] Eur. Phys. J. C 82, 810 2022; SP[12] Eur. Phys. J. C 81, 104, 2021</b>.</p> |
| 2017-present    | CUORE     | <p>CUORE is in stable data taking since 2019. The collected exposure of 1 Ton x yr sets a fundamental milestone for the next generation experiments using cryogenic calorimeters spanning from neutrino and dark matter experiments to quantum computing (<b>Prog. Part. Nucl. Phys. 122 (2022) 103902</b>). The 1 Ton x yr results have been published on <b>SP[15] Nature 604, 53-58, 2022</b>. The result with the release of the 2 Ton x yr data has been recently submitted to Science (<a href="#">link</a>) and I was member of the internal review committee.</p> <p>Research Fellows, hired on my funds, are contributing to different aspects of the <math>0\nu\beta\beta</math> analysis on the fundamental state (line shape, energy scale systematics), excited states modes <i>Eur. Phys. J. C 81 (2021) 567</i> and search on <math>^{128}\text{Te}</math> modes <i>Phys. Rev. Lett. 129 n.22, 222501 2022</i> as well as detector performances optimisation (Pulse Tube Scan responsibility). My PhD student led the analysis of the Axion search in the CUORE and he's now the analysis coordinator of the low energy region. The first CUORE results with an exposure of ~300 kg x yr were published in <b>SP[9] Phys. Rev. Lett. 124 n.12, 122501 2020 (Editors' Suggestion)</b>.</p>  |
| 09.2019-present | PRIN 2017 | <p><b>Coordinator of Sapienza Unit. Main activities:</b> development of new methodologies towards a third generation scintillating bolometers experiment based on Ultrapure Electro-formed Copper and Additive Manufacturing structure. Development of an ultrapure crystal production chain. First crystals produced and tested as well as the new prototype design of the detector</p> <p><b>Eur. Phys. J. C 81 (2021) 2, 104; Phys. Rev. C 104 (2021) 1, 015501.</b></p>   |
| 2017-present    | CUPID-Mo  | <p>Representative for INFN in the CUPID-Mo Collaboration Board, the second CUPID demonstrator that took data in 2019-2020 in Underground Modane Lab. Main INFN contribution: coordination of data analysis, sharing of software techniques and know-how developed during CUPID-0, electronics &amp; DAQ, procurement of thermistors. Chair of the review committee for the analysis of the precise measurement of <math>2\nu\beta\beta</math> decay of <math>^{100}\text{Mo}</math> with the CUPID-Mo detection technology. <b>SP[10] Eur. Phys. J. C 80, 674, 2020.</b></p>  |

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| 10.2015-present | CUPID-0    | <p>CUPID-0 (funded by the INFN-CSN2); first large array of isotopically enriched scintillating bolometers (<math>Zn^{82}Se</math>) in operation.</p> <p><b>PI</b> of the Rome group (~12 members) and <b>technical coordinator</b> of the experiment.</p> <p>Group responsibility: mechanical assembly of the experiment, data acquisition system, software and analysis coordination, maintenance of the computing cluster center, crystal procurement (growth, cutting and polishing), verticalization system of the apparatus.</p> <p>All the CUPID-0 data were analysed in a Master's Degree thesis under my co-supervision and led to Final CUPID-0 neutrinoless double beta results <b>SP[13] Phys. Rev. Lett. 129 (2022) 11, 111801 (Featured in Physics)</b>.</p> <p>Main contribution to the first result published in <b>SP[7] Phys. Rev. Lett. 120 (2018) no. 23, 232502 (Editors' Suggestion)</b>: the implementation of the particle identification allows to suppress the background down to <math>3.6 \cdot 10^{-3}</math> counts/(keV·kg·yr), an unprecedented level for this technique.</p> <p>Under my mentoring the PhD thesis "Advanced search for neutrinoless double beta decay in selenium-82 with CUPID-0" explored was awarded the <b>National Award Bruno Rossi 2018 for the best PhD thesis in AstroParticle Physics</b>.</p> <p>Master's degree thesis "Search of the neutrino-less double beta decay of <math>^{82}Se</math> into the excited states of <math>^{82}Kr</math> with CUPID-0" under my co-supervision led to <b>SP[8] Eur. Phys. J. C 78, 888, 2018</b></p> <p>I coordinated the activities of the first test with enriched crystals, whose performances are published in <b>SP[4] Eur. Phys. J C 76, 364 2016</b>.</p> <p>I mentored in the analysis of the search for the Majoron boson ("Search for new Physics with cryogenic calorimeters", Ressa PhD thesis) that was published in <b>SP[16]: Phys. Rev. D 107 n.3, 032006 2023</b>.</p> |
| 2018            | CYGNO      | <p>I joined the CYGNO experiment, a highly resolution Time Projection Chamber (TPC) with optical 3D readout based on Gas Electron Multipliers (GEMs) amplification of Helium/Fluorine gas mixture for directional Dark Matter searches.</p> <p>I participated in the simulation for the estimate of the radioactive background budget in the experiments setup. I left the collaboration in 2019 when I was appointed National PI of CUPID.</p>  |
| 2011-2015       | LUCIFER-RD | <p><b>PI of the Rome group</b> (2011-2016):~6 members.</p> <p>Group responsibility:</p> <ul style="list-style-type: none"> <li>-Se enrichment and purification, ZnSe synthesis, crystal development;</li> <li>-crystal optical properties characterisation. I promoted the realisation of an optical bench for measurements down to 10 mK in the Physics Department, thanks to two "Sapienza" <b>grants</b> obtained as <b>PI</b>;</li> <li>-R&amp;D tests at LNGS: gluing, assembly, bonding, cool-down, data taking and data analysis;</li> <li>-commissioning of 2 dilution refrigerators at LNGS.</li> <li>-In charge of data analysis coordination and responsible of data management, backup and analysis farm.</li> </ul> <p><b>National PI (2013-2015)</b></p> <p>Activities:</p> <ul style="list-style-type: none"> <li>-thermistor production, irradiation, performances characterisation at LNGS;</li> <li>-bolometric light detectors development, performances characterisation at LNGS, anti-reflective coating studies ("Sapienza" grant as <b>PI</b> on this topic);</li> <li>-copper procurement &amp; mechanical assembly;</li> <li>-data acquisition and electronics development;</li> <li>-radioactivity measurements;</li> </ul> <p><b>Adv.High Energy Phys. 2013 (2013) 237973 (56 cit.)</b></p>   |

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| 2011- 2016 | LUCIFER-RD<br>and<br>PRIN2011<br>and<br>beyond-<br>CUORE | <p>PRIN2011 (<b>Coordinator of Sapienza Unit</b>) development of 3 main research lines evaluated by the <b>Nuclear Science Advisory Committee</b> whose goal is to propose the best technology for a future <math>0\nu\beta\beta</math> decay experiment for the inverted hierarchy neutrino mass region coverage.</p> <p>1)First measurement of Cherenkov light in <math>\text{TeO}_2</math> bolometers and <math>\alpha</math> background discrimination based on this effect (research inserted among the priorities of the ASPERA European Network) <i>Astropart.Phys.</i> 69 (2015) 30-36, <i>Eur.Phys.J.C</i> 75 (2015) 1, 12</p> <p>2)Complete <math>\alpha</math> background rejection in massive <math>\text{ZnMoO}_4</math> scintillating bolometers, making use of the only information of the heat bolometer. This feature makes this compound a very promising candidate for a next generation experiment. I develop the Multivariate analysis to reach this goal. <i>Eur.Phys.J. C</i>72 (2012) 2142, <b><i>Astropart. Phys.</i> 35, 813 2012 (71 cit.)</b></p> <p>3)Demonstration of <math>\alpha</math> background suppression in large mass <math>\text{ZnSe}</math> bolometers <i>JINST</i> 8 (2013) P05021</p> <p>Due to these results I was <b>member</b> of the <b>CUORE-I(nverted)H(ierarchy)E(xplorer) Steering Committee</b> which coordinated the R&amp;D activities for an beyond-CUORE experiment. A position paper was presented at DOE Nuclear Physics Long Range Plan Town Meeting. The Letter of Interest can be examined at arXiv:1504.03599, arXiv:1504.03612</p> <p>Among the <b>proponents</b> and <b>contributor</b> (pile-up contribution, sensitivity extrapolation. alfa/gamma discrimination) of the Study for an Inverted Neutrino Hierarchy mass region Explorer with scintillating bolometers <b>SP[1] <i>Eur. Phys. J. C</i>74 (2014) 3096</b></p> |
| 2013       | PRIN2011<br>rare decay                                   | <p>Within the scope of the Project rare decays and innovative bolometers were studied: discovery of the <math>^{151}\text{Eu}</math> <math>\alpha</math> decay, best world upper limits on <math>\alpha</math> decay of lead isotopes, development of a <math>\text{Li}_2\text{MoO}_4</math> detector for dark matter and <math>0\nu\beta\beta</math> search. <i>J.Phys.G</i> 41 (2014) 075101 (40 cit.) (selected as ‘<b>Highlights of 2014</b>’ collection), <i>JINST</i> 8 (2013) P10002 (72 cit.)</p>  |
| 2013-2017  | FIRB-2012  | <p>Development of large area (<math>5\times 5\text{cm}^2</math>) cryogenic light detectors with baseline energy resolution of <math>\sim 20</math> eV and with high reliability. They are based on superconductor devices (Kinetic Inductance Detectors) and could improve the CUORE sensitivity by <math>\sim 10</math> through the Cherenkov effect and allows dark matter searches in CUPID.</p> <p>PI of the <b>Sapienza Research group</b> involved in design, realisation, test of KID sensors and electronics development.</p> <p>I hired on this project a RTD-A researcher and Research Fellow (Assegno di Ricerca) I won a “Sapienza” <b>grant</b> for the realisation of a cryogenic setup for inter-departmental researches. The cryostat is now hosted in a dedicated lab shared with the INFN Rome. <i>Eur.Phys.J. C</i>75 (2015) no.8, 353</p>  |
| 2012- 2016 | ISOTTA   | <p><b>Chair of the Measurement Coordinator Panel</b> whose role was pursuing the integration of the different techniques, promoting the development of protocols and procedures among various labs, coordinating the development of novel detectors.</p> <p>Main result obtained: proof of the working principle of a large mass <math>\text{Li}_2\text{MoO}_4</math> bolometer for <math>0\nu\beta\beta</math> search. The <math>\text{Li}_2\text{MoO}_4</math> crystal has the advantages of an easier crystal growth procedure with a negligible loss of enriched material Results are published in <b>SP[6] <i>Eur. Phys. J. C</i> 77, 785 2017</b>. This led the community to propose an experiment [CUPID-Mo] with <math>\sim 9</math> kg of enriched <math>^{100}\text{Mo}</math> that took data at the Modane Underground Laboratory. I’m the <b>INFN Representative</b> in the CUPID-Mo collaboration board.</p>  |

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| 2012-2015  | ARPG<br>Intraoperative probe                        | <p><b>Development of a <math>\beta^-</math> intraoperative probe for brain tumor residuals detection.</b> The novelty of the project is both in the design of the device, that making use of only recently developed materials(p-terphenyl) allows to use <math>\beta^-</math> radio-tracers, and in the perspective application in-vivo.</p> <p>On this topic I won a “<b>Sapienza</b>” <b>grant as PI</b> and separately, a <b>funding assignment for a 1 year Research Fellow position</b>. Main developed items in the grant: MC simulations, participation to measurement with <math>^{18}\text{F}</math> liquid source, software development for an automatic comparison of different probes.</p> <p>I was the <b>Sapienza contact person</b> for the research contract stipulated among Sapienza, INFN, Istituto Italiano Tecnologia, surgeons of the Besta Neurological Institute and Istituto Europeo di Oncologia .</p> <p>The development led to an <b>International Patent PCT N.WOIT000025 published on 07.08.2014</b>. Selected publication <b>SP[2] Sci.Rep. 4 (2014) 4401</b></p> |
| 2013- 2015 | ARPG  | <p><b>Supervisor</b> of the simulation of the neutron shields for the TOP-IMPLART project, a novel linear 250 MeV proton accelerator for proton therapy (Master’s degree Thesis).</p> <p>Study of a new method of <b>protons production</b> with energy of interest for hadron-therapy exploiting the photo-production effect from electrons produced in Laser Plasma Acceleration (Master’s degree Thesis)</p>   |
| 2013       | CUORE<br>Axions                                     | <p>I contributed to the analysis for the <b>Search for 14.4 keV solar axions from M1 transition of <math>^{57}\text{Fe}</math> with CUORE crystals</b>. In particular I performed the global fit, limit extraction and the inference on the effective coupling constants <b>JCAP 1305 (2013) 007</b>. I <b>promoted</b> the re-analysis of old data for the search of solar axions using BGO scintillating bolometer <b>Eur.Phys.J C 74,3035 (2014)</b></p>   |
| 2009-2018  | CUORE-0<br>cluster                                  | <p><b>CUORE-0-Computing model: I conceived and realised</b> the infrastructure for the CUORE-0-Computing model. Reference data and software, computing farm, main experiment services resided in Rome under my <b>maintenance-management</b>. The farm was used to the first CUORE-0 results <b>SP[3] Phys. Rev. Lett. 115, 10, 102502 (2015)</b> The CUORE computing farm moved to CNAF in 2016, I was the <b>Contact person</b> for the collaboration and maintenance of the system until 2018.</p>   |
| 2011-2013  | CUORE-0<br>assembly                                 | <p>I was a <b>Member</b> of the CUORE-0 assembly team with the specific task of the tower alignment. I was involved in the mechanical assembly of the tower and I participated in all the phases of the design construction and test of the assembly chain. Details are are documented in <b>SP[5] JINST 11 P07009</b></p>  |
| 2009-2011  | CUORE<br>crystals<br>performances                   | <p><b>CUORE crystals performances:</b> the stringent constraints in term of radio-purity and energy resolution of CUORE <math>\text{TeO}_2</math> crystals required to perform bolometric tests all over the crystal production. <b>Coordinator</b> of the analyses for the contaminations and performances for the first 500 (INFN-funded) bolometers. Results in <b>Astropart.Phys. 35 (2012) 839-849 (75 cit.)</b></p>   |
| 2009-2011  | CUORICINO<br>$^{130}\text{Te}$                      | <p>Search for the <math>0\nu\beta\beta</math> decay of <math>^{130}\text{Te}</math> with the full CUORICINO statistics. Best World limit. <b>Data Production Coordinator</b> with the additional responsibility of the development and choice of algorithms to be applied in all the analysis chain. Development of the Bayesian UEML lower limit fit. To analysis the whole dataset I <b>proposed and realised</b> the first computing farm for the CUORICINO experiment. Results in <b>Astropart.Phys. 34 (2011) 822-831 (233 cit.)</b></p>   |
| 2011       | CUORICINO<br>$^{120}\text{Te}$                      | <p><b>Major contribution</b> to the <b>search for <math>\beta^+/\text{EC}</math> double beta decay of <math>^{120}\text{Te}</math></b> with the full CUORICINO statistics. Limit improved by four order of magnitude compared to the previous one. <b>Astropart.Phys. 34 (2011) 643-648</b></p>   |
| 2010       | $\text{TeO}_2$<br>quenching<br>factor               | <p><b>Main contributor</b> to the study of the <b>response of a <math>\text{TeO}_2</math> bolometer to <math>\alpha</math> particles:</b> first measurement of <math>\alpha</math> quenching factor and resolution in the crystal bulk (obtained with natural Sm doping) as a function of the energy.<br/>This is fundamental ingredient for the comprehension of the dominant <math>\alpha</math> background and for a reliable Monte Carlo data modelling <b>JINST 5 (2010) P12005</b></p>  |
| 2007-2008  | CUORICINO/<br>CUORE-0/<br>CUPID-0<br>online control | <p>I <b>promoted and developed</b> a tool for the prompt reconstruction, data taking quality check, data integrity recognition. This has become a fundamental tool for the analysis shifter and it has been adopted by the CUORE/-0CUPID-0 collaboration.</p>   |

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| 2007-2009 | CUORICINO muon detector   | <b>CUORICINO muon identification system:</b> one of the main contributors to the design, deployment, commissioning and data taking. The first part of this task took part at the Emilio Segrè Lab in Sapienza under my <b>supervision</b> . First measurement of the muon induced background in CUORICINO <b>Astropart.Phys. 34 (2010) 18-24</b>  |
| 2007-2008 | CUORE muon detector       | <b>Coordinator of the CUORE muon identification system.</b> I pursued an R&D activity for the optimisation of the mechanical and optical coupling for several types of light detectors and performed simulations for the best configuration with minimal multiplexing scheme. The adopted strategy comprised extruded scintillators bars read by scintillating fibres. The collaboration decided to postpone the installation of a muon system to a beyond-CUORE experiment due to cost limitation problems   |
| 2007      | CUORE read-out            | I worked on the <b>selection</b> of materials for the cryogenic read-out of CUORE bolometers taking into account stringent thermal, electrical and radio-purity constraints (theme of Co.Co.Co with Univ. Tor Vergata)  |
| 2006-2011 | CUORE bolometric tests    | <b>Assembly</b> of bolometric detectors at LNGS aiming at the surface background reduction. This activity comprised: crystal etching and lapping, copper cleaning, thermistor and heater gluing, wiring and assembly.   |
| 2006-2007 | CUORE external background | In <b>charge</b> of Monte Carlo simulations on muon and neutron induced background on the CUORE detector with FLUKA simulator. The results led the choice of the actual CUORE shields. <b>Astropart.Phys. 33 169-174 (2010) (48 cit)</b>  |
| 2005-2017 | CUORE/ CUORICINO software | Design and implementation of analysis software and database. <b>Main activities:</b> detector-database interface, data quality control<br><b>Responsible</b> of data management.  |
| 2005      | CUORE support structure   | Member of the team for the <b>Optimisation</b> of the mechanical structure of CUORE through mechanical, vibrational and thermal stress. Test at 77K with vibrating benches at Laboratori ENEA-Casaccia.   |
| 2004-2007 | BaBar RPC Ageing          | <b>RPC Ageing studies: I was in charge</b> of the measurements of the HF production and absorption rate in the BaBar RPCs. For the first time this study was performed during the data taking. The study led to the comprehension of RPC ageing, an important result in view of their extensive use in HEP experiments. ( <b>Nucl. Instrum. Meth. A594 (2008) 33-38</b> ). All the works related to the Babar RPC upgrade, operation and ageing are collected in <b>Nucl. Instrum. Meth. 729, 615 2013</b>  |
| 2004      | BaBar OP                  | <b>Operation Manager</b> of the muon and neutral hadrons identification system. This task comprised the responsibility of the regular data taking and solution of working problems of the detector itself.  |
| 2002-2008 | Babar Radiative Penguins  | <b>Radiative Penguin Group.</b> I <b>led</b> the analysis of the branching fraction measurement $b \rightarrow s\gamma$ using the novel technique of the fully reconstructed B's mesons in radiative penguin decays. This rare process and its direct <b>CP asymmetry</b> are highly sensitive to new physics contributions and the photon spectrum is fundamental for the $V_{ub}$ extraction in $\rightarrow X_{ll}\nu$ decays. This method has the advantage of measuring the momentum of the tag B, which makes it possible to calculate the $\gamma$ energy in the recoiling signal-B rest frame, thus reducing the systematic errors. It also identifies both the flavor and the charge of the B in the $B \rightarrow X_S\gamma$ decay. The analysis was statistically limited but it represents the most promising method at a high-luminosity B Factory and it's one of the most studied decay nowadays at the Belle II experiment. During this work I was involved in several rare and radiative decay searches ( $b \rightarrow s(d)\gamma(1^{+-})$ ) decay searches. <b>Phys.Rev. D77 (2008) 051103 (96 cit.)</b> , <b>Phys. Rev. Lett. 97, 171803 (2006) (67 cit.)</b> , <b>Phys. Rev. Lett. 93, 021804 (2004)(104 cit.)</b> . |
| 2001-2003 | BaBar RPC                 | <b>2<sup>nd</sup> generation RPCs</b> for the muon and neutral hadrons identification system. I took part in the RCPs production and installation, comprising quality assurance checks able to ensure high standards (mechanical and electrical tests and efficiency measurement). <b>Nucl.Instrum.Meth. A552 (2005) 276-291</b>  |
| 2001-2002 | BaBar Calorimeter         | <b>Calorimeter Reconstruction Group:</b> I was the <b>responsible</b> of the development of algorithms for the $\gamma/\pi^0$ identification and reconstruction efficiencies in the BaBar calorimeter. I elaborated a new matricial method to take into account the energy dependences and correlations.  |

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| 1999-2000 | KLOE | <b>Master Degree thesis:</b> Regeneration cross section measurement in KLOE for neutral K mesons with $p=110$ MeV/c. The measurement made use of charged K decay exploiting the full capability of the tracking chamber. It represented <b>one of the first results of the KLOE collaboration</b> (presented at ICHEP 2000) and one of the few measurements in the world at such low energy momentum. |
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## Commission of Trust

| Years              | Title   |
|--------------------|---|
| 24.05.2022-present | <b>President of the panel for Postdoc Positions (Assegni di Ricerca) at INFN Rome, Disposizione del Presidente 24458 (mandate extended on 27.06.2024)</b>   |
| 2023               | <b>President of the committee</b> “Concorso Bando n. 26263/2023 per il conferimento di n. 6 borse di studio per attività di formazione scientifica per studenti universitari da usufruire presso la Sezione di Roma”  |
| 2022               | Member of committee of INFN research fellowship Assegno Salvini (bando n. 23760/2021, Disposizione del Presidente 24161)  |
| 2022               | <b>President of the committee</b> “Concorso Bando n. 25224/2022 per il conferimento di n. 7 borse di studio per attività di formazione scientifica per studenti universitari da usufruire presso la Sezione di Roma”  |
| 2013-2021          | 2021: Member of the committee RTD-A Competition Milano Bicocca Univ (D.R. 47462021)<br>2021: Member of the committee RTD-A Competition Sapienza Univ. (Bando n.231/2021)<br>2019: Member of the committee RTD-A Competition Gran Sasso Science Institute (D.R 120/2019)<br>2017: Member of the committee RTD-A Competition Milano Bicocca Univ (D.R 15620)<br>2016: Member of the committee RTD-A Competition Padova Univ. (Dec.Pr. 1748/2016)<br>2013: President of the committee RTD-A Competition Sapienza Univ. (Bando n.19/2013) |
| 2020               | Member of the panel for “Evaluation proposal of Junior research fellow positions University of Insubria”  |
| 07.2020-09.2020    | Member of the committee for the establishment of the intradepartmental Bachelor’sdegree in Artificial Intelligence  |
| 2019               | <b>President of the committee of BANDO INFN N. 21121</b> “Concorso per titoli ed esami a due posti per il profilo professionale di Collaboratore di Amministrazione di VII livello professionale con contratto di lavoro a tempo indeterminato riservato alle categorie disabili di cui alla L. 68/99, art. 1”  |
| 2019               | President of the committee for the bidding for “Fornitura del sistema di distribuzione gas con ricircolo e con recupero del gas in exhaust per l’esperimento CYGNO”   |
| 2019               | Member of the committee “Concorso Bando n. 21364/2019 per il conferimento di n. 5 borse di studio per attività di formazione scientifica per studenti universitari da usufruire presso la Sezione di Roma”  |
| 2018               | President of the committee for the bidding for “Acquisto di una Glove Box in polimetilmetacrilato”  |
| 2018               | <b>Member of committee for INFN National Award Bruno Rossi 2017 for the best PhD thesis in AstroParticle Physics</b>  |
| 2013               | Member of the committee for student fellowship, Bando 15931 Gran Sasso Science Institute  |



## Referee and reviewing activities

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| Years           | Title  |
|-----------------|--|
| 2023            | <b>Referee (Peer Review Competition) for the European Research Council Starting Grant 2023</b><br>Call (Project budget ~1.75 M€)   |
| 2022            | <b>Referee (Peer Review Competition) for FLARE Grant for the Swiss National Science Foundation</b><br>(Project budget ~1 M€)   |
| 2021            | Referee for Agenzia Nazionale per la Valutazione del sistema Universitario e della Ricerca<br>(ANVUR) for the VQR 2015-2019 campaign   |
| 2020-present    | <b>Referee for Journal of High Energy Physics</b>  |
| 05.2020-present | <b>Member of the “Universe MDPI” Editorial Board</b>   |
| 2020            | Guest Editor of the Special Issue “Neutrinoless Double Beta Decay” for Universe MDPI   |
| 2014-present    | <b>Referee for the INFN</b><br>-DarkSide20K & DarkSide50 experiment (DarkSide20K total(INFN) budget ~100(40) M€)   |
| 2019-present    | <b>Referee for the INFN</b><br>-JUNO Experiment (total budget ~15 M€)  |
| 2019            | <b>Referee (Peer Review Competition) for the European Research Council Starting Grant 2019</b><br>Call (Project budget ~2 M€)  |
| 2018            | <b>Referee (Peer Review Competition) for French National Research Agency ANR</b> (generic call proposals 2018 (Project budget ~350 k€)   |
| 2018            | Member of committee for INFN <b>National Award Bruno Rossi 2017 for the best PhD thesis in AstroParticle Physics</b>   |
| 2017            | <b>Referee (Peer Review Competition) for Ministero dell’Istruzione, Università e Ricerca progetti FARE 2016</b> (Framework per l’attrazione e il rafforzamento delle eccellenze per la Ricerca in Italia)<br>(Project budget ~250 k€), |
| 2016            | <b>Referee (Peer Review Competition) for Discovery Grants Referee for the Natural Sciences and Engineering Research Council of Canada NSERC</b> (Project budget ~3 M€)   |
| 2015-present    | <b>Referee for Nature Scientific Reports</b>   |
| 2012-2014       | <b>Chair of the “Isotta” Measurement Coordination Panel (AstroParticle European Research Area Network)</b>   |
| 2014            | Referee for Agenzia Nazionale per la Valutazione del sistema Universitario e della Ricerca (ANVUR) for the VQR 2011-2014 campaign  |
| 2010            | Member of the Editorial Board of the proceedings of the Conference “Incontri di Fisica delle Alte Energie”, Italian Physics Society Editor   |
| 2008-present    | <b>Referee for Nuclear Instruments and Methods in Physics Research, A</b>  |
| 2004-present    | Member and chair of several internale review committees of analyses in BaBar/CUORE/Lucifer/CUPID   |

## Personnel hired on personal funds

| Years                    | Student     | Title  | Position                                |
|--------------------------|-------------|--|---|
| 23.12.2021<br>08.01.2024 | G.Fantini   | Quantificazione della footprint fossile di matrici carboniose, sviluppo di tecniche e metodi di analisi e quantificazione del contenuto di C14 (position co-funded by MUR)                                 | RTD-A Green                             |
| 01.03.2021<br>28.02.2022 | I. Dafinei  | Ottimizzazione di cristalli scintillanti intrinseci ad altissima radio purezza e caratterizzazione delle proprietà ottiche di cristalli ad elevata risoluzione temporale e alta resistenza alle radiazioni | Co.Co.Co                                |
| 01.04.2021<br>07.03.2023 | V. Dompè    | Sviluppo di tecniche avanzate per un esperimento criogenico per la ricerca del Decadimento Beta Doppio   | Research Fellow (Assegno di ricerca)    |
| 01.02.2020<br>21.12.2021 | G. Fantini  | Ricerca di eventi rari con gli esperimenti CUORE e CUPID   | Research Fellow (Assegno di ricerca)    |
| 01.02.2015<br>31.01.2016 | C. Mancini  | Sonda Intraoperatoria per l'identificazione di tumori cerebrali  | Research Fellow (Assegno di ricerca)    |
| 01.08.2013<br>31.07.2016 | A. Cruciani | Rivelatori di luce criogenici ad alta sensibilità per la ricerca di eventi rari  | RTD-A (now permanent INFN technologist) |
| 01.12.2014<br>30.11.2016 | N. Casali   | Sviluppo di elettronica e sistemi di acquisizione dati per rivelatori di luce criogenici   | Research Fellow (Assegno di ricerca)    |
| 01.06.2013<br>06.09.2013 | R. Bagni    | Fabbricazione di rivelatori di luce KID (Kinetic Inductance Detectors) con tecnologie di film sottili. Interrotto per assunzione a tempo indeterminato in Enel   | Research Fellow (Assegno di ricerca)    |

## Supervision of Research Activities and tutoring

### Research Fellow (Assegni di Ricerca)

| Years                    | Student    | Title  | Now  |
|--------------------------|------------|--|--|
| 01.04.2021<br>07.03.2023 | V. Dompè   | Sviluppo di tecniche avanzate per un esperimento criogenico per la ricerca del Decadimento Beta Doppio | Winner of a fixed-term Technologist position |
| 01.02.2020<br>22.12.2021 | G. Fantini | Ricerca di eventi rari con gli esperimenti CUORE e CUPID   | "Prima" Senior data scientist                |
| 01.02.2015<br>31.01.2016 | C. Mancini | Sonda Intraoperatoria per l'identificazione di tumori cerebrali  | RTD-B Sapienza                               |
| 01.12.2014<br>30.11.2016 | N. Casali  | Sviluppo di elettronica e sistemi di acquisizione dati per rivelatori di luce criogenici               | Permanent Researcher INFN                    |

### PhD Students

| Years           | Student  | Title  | Now           |
|-----------------|----------|--|---------------|
| 2022<br>present | D.Tozzi  | "Sviluppo e ottimizzazione di metodi di analisi radiochimici e di tecniche di dosimetria per il monitoraggio ambientale" | -             |
| 2020<br>2024    | A. Ressa | "Search for new Physics with cryogenic calorimeters"   | INFN Post-doc |

|              |              |  |  |
|--------------|--------------|--|--|
| 2014<br>2018 | L. Pagnanini | “Advanced search for neutrinoless double beta decay in selenium-82 with CUPID-0”<br><b>National Award Bruno Rossi 2019 for the best PhD thesis in AstroParticle Physics.</b> | Gran Sasso<br>Science Institute<br>RTD-B(Assistant<br>Professor) |
|--------------|--------------|--|--|

### Master Students

| Years | Student         | Title   |
|-------|-----------------|---|
| 2022  | F. Pompa        | Exploring new fitting strategies to improve the sensitivity of CUORE to neutrinoless double-beta decay of $^{130}\text{Te}$   |
| 2021  | F. De Dominicis | Final result of the CUPID-0 experiment in the search for the $^{82}\text{Se}$ neutrinoless double beta decay, <b>Phys. Rev. Lett. 129 (2022) 11, 111801</b>             |
| 2020  | A. Ressa        | Scintillating $\text{Li}_2\text{MoO}_4$ Bolometers for neutrinoless double decay search <b>Eur. Phys. J. C 81 (2021) 2, 104</b>   |
| 2019  | S. Sorbino      | Development of new bolometer crystals for rare events searches.<br><b>Nucl. Instrum. Meth. A 977 (2020) 164160</b>  |
| 2018  | E. Bossio       | Ricerca del decadimento doppio beta senza neutrini del $^{82}\text{Se}$ sugli stati eccitati del $^{82}\text{Kr}$ con CUPID-0 <b>Eur. Phys. J. C 78 (2018) 11, 888</b>  |
| 2016  | A. Balzoni      | Caratterizzazione di bolometri scintillanti di $\text{Zn}^{82}\text{Se}$ per la ricerca del decadimento doppio beta senza neutrini <b>Eur.Phys.J.C 76 (2016) 7, 364</b> |
| 2015  | A. Cicchetti    | Test di fotoproduzione di protoni su target di Nichel per scopi adroterapici  |
| 2015  | L. Pagnanini    | Sviluppo di rivelatori ad induttanza cinetica per CALDER  |
| 2013  | M. Senzacqua    | Progettazione di un sistema di schermatura per un acceleratore lineare a protoni per adroterapia  |
| 2013  | D. Santone      | Studio della resa di luce di un cristallo di biossido di tellurio<br><b>JINST 9 (2014) 10, P10014</b>   |
| 2012  | E. Gorello      | Caratterizzazione di bolometri scintillanti per la ricerca del decadimento doppio beta <b>Eur.Phys.J.C 72 (2012) 2142</b>   |
| 2010  | R. Pompili      | Sviluppo e caratterizzazione di bolometri scintillanti per lo studio del decadimento doppio beta  |

### Bachelor Students

35 dissertations covering CP violation and matter antimatter asymmetry, quark model, detectors for particle physics, neutrino phenomenology, weak interactions, medical physics

### Percorso di eccellenza

~14 dissertations covering statistical methods applications in physics, advanced topics on mechanics and Laboratory of mechanics, construction of a cloud chamber

## Part VII.C - Outreach and technological transfer Activities

In the last 3 years, I have undertaken joint research activities with the company LB Servizi per le Aziende to develop environmental monitoring techniques. A patent application has been submitted. I contributed to the International patent for an Intraoperative probe for tumour detection.

I am currently a member of the scientific committee of the Asimov National Award for scientific dissemination and the head of the related PCTO, which I introduced at Sapienza 2 years ago, involving approximately 150 students per year.

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### Technological transfer Activities

| Year | Type   |
|------|--|
| 2014 | <b>Research contract between Sapienza, INFN, IIT, Istituto Europeo di Oncologia and Istituto Neurologico C. Besta for the experimentation of <math>\beta</math>- probes for the complete removal of brain tumor.</b>   |
| 2014 | <b>Patent RM2013A000050 Extended to International Patent PCT/IT2014/000025, WO2014118815A2</b><br>“Intraoperative detection of tumor residues using beta- radiation and corresponding probes”<br><a href="https://encrypted.google.com/patents/WO2014118815A2?hl=it&amp;cl=en">https://encrypted.google.com/patents/WO2014118815A2?hl=it&amp;cl=en</a> |
| 2013 | <b>Patent RM2013A000050</b> “Sonda di rivelazione di radiazione beta- per l’identificazione intraoperatoria di residui tumorali”   |

### Outreach

| Year         | Type  |
|--------------|---|
| 23.05. 2024  | Physics drink @ draft tap bar: “neutrini&co: le astroparticelle”  |
| 2022-present | <b>Sapienza Responsible of the PCTO (percorsi competenze trasversali e orientamento) “Diventa un giurato per il premio Asimov per la divulgazione scientifica” ~150 students/yr</b>                 |
| 2022-present | <b>Member of the scientific committee of the Premio Asimov</b> per l’editoria scientifica divulgativa: books proposal and review evaluation   |
| 2016         | Video for Frascati Scienza “ <u>Ricercatore chiama Terra</u> ”  |
| 2.2016       | Seminar “Neutrino: l’insostenibile leggerezza dell’essere”. Manifestazione “La fisica incontra la città “Univ. of Rome “Roma Tre”   |
| 2015         | Radio 24 Interview on Nobel Laureate 2015   |
| 10.2013      | Article “Assenti giustificati” on the INFN Journal “Asimmetrie” N15/10.13 <a href="http://www.asimmetrie.it/images/pdf/asimmetrie-15.pdf">http://www.asimmetrie.it/images/pdf/asimmetrie-15.pdf</a> |
| 06.03.2012   | Seminar “Esplorare il cosmo da sotto la montagna:I Laboratori Nazionali del Gran Sasso”, Manifestazione “I pomeriggi della Scienza, Convitto Nazionale High School                                  |
| 07.04.2011   | Lecture on “La fisica in Barca” INFN <a href="https://web.infn.it/fisicainbarca2011/">https://web.infn.it/fisicainbarca2011/</a>  |
| 2010-2015    | Member of the Scientific Committee of “Accastampato”, a journal on physics topics aimed at science dissemination and divulgation toward high school students.                                       |

## Part VIII - Summary of Scientific Achievements

Numbers are from Scopus Database. Impact Factors are taken from Clarivate Journal Citation Report [link](#). ~90 proceedings are **not** included.

|   |       |
|---|-------|
| Total number of publications                  | 443   |
| Total citations                               | 20914 |
| Average citation for product                  | 47    |
| Total Impact Factor                           | 2160  |
| Average Impact Factor                         | 4.87  |
| Hirsch (H) index                              | 78    |
| Total number of publications in last 15 years | 149   |
| Total citations in last 15 years              | 5077  |
| Average citation for product in last 15 years | 34.1  |
| Total Impact Factor in last 15 years          | 497   |
| Average Impact Factor in last 15 years        | 3.3   |
| Hirsch (H) index in last 15 years             | 42    |

## Part IX - Selected Publications

Impact factors are from Clarivate Journal Citation Report.

| n. | Authors                                       | Title   | Ref  | IF    | Cit. (Inspire Jul 2024) |
|----|---|---|--|-------|-------------------------|
| 16 | O.Azzolini et al.<br>CUPID-0<br>Collaboration | Search for Majoron-like particles with CUPID-0  | Phys. Rev. D 107 3, 032006 2023                            | 4.6   | 7                       |
| 15 | D.Q. Adams et al<br>CUORE<br>Collaboration    | Search for Majorana neutrinos exploiting millikelvin cryogenics with CUORE                                | Nature 604,53-58, 2022                                     | 64.8  | 158                     |
| 14 | K.Alfonso et al.<br>CUPID<br>Collaboration    | Optimization of the first CUPID detector module   | Eur. Phys. J. C 82,810 2022                                | 4.2   | 17                      |
| 13 | O.Azzolini et al.<br>CUPID-0<br>Collaboration | Final Result on the Neutrinoless Double Beta Decay of Se 82 with CUPID-0                                  | Phys. Rev. Lett. 129, 111801 2022 (Featured in Physics)    | 8.6   | 50                      |
| 12 | A.Armatol et al.<br>CUPID<br>Collaboration    | Characterization of cubic $\text{Li}_2^{100}\text{MoO}_4$ crystals for the CUPID experiment               | Eur. Phys. J. C 81, 104, 2021                              | 4.994 | 31                      |
| 11 | E. Armengaud et al.                           | New Limit for Neutrinoless Double-Beta Decay of $^{100}\text{Mo}$ from the CUPID-Mo Experiment            | Phys. Rev. Lett. 126(18), 181802 2021                      | 9.185 | 96                      |
| 10 | E. Armengaud et al.                           | Precise measurement of $2\nu\beta\beta$ decay of $^{100}\text{Mo}$ with the CUPID-Mo detection technology | Eur. Phys. J. C 80, 674, 2020                              | 4.590 | 50                      |
| 9  | D.Q. Adams et al<br>CUORE<br>Collaboration    | Improved Limit on Neutrinoless Double-Beta Decay in Te-130 with CUORE                                     | Phys. Rev. Lett. 124 12, 122501 2020 (Editors' Suggestion) | 9.161 | 219                     |

|   |   |  |  |       |                 |
|---|---|--|--|-------|-----------------|
| 8 | O.Azzolini et al.<br>CUPID-0<br>Collaboration | Search of the neutrino-less double beta decay of $^{82}\text{Se}$ into the excited states of $^{82}\text{Kr}$ with CUPID-0         | Eur. Phys. J. C 78, 888, 2018                                | 4.883 | 30              |
| 7 | O.Azzolini et al.<br>CUPID-0<br>Collaboration | First Result on the Neutrinoless Double-beta Decay of Se-82 with CUPID-0   | Phys. Rev. Lett. 120 n.13, 232502 2018 (Editors' Suggestion) | 9.227 | 121             |
| 6 | E. Armengaud et al                            | Development of $^{100}\text{Mo}$ -containing scintillating bolometers for a high-sensitivity neutrinoless double-beta decay search | Eur. Phys. J. C 77, 785 2017                                 | 5.172 | 115             |
| 5 | C. Alduino et al.<br>CUORE<br>Collaboration   | CUORE-0 detector: design, construction and operation   | JINST 11 P07009 2016   | 1.22  | 109             |
| 4 | D.R.Artusa et al.<br>CUPID<br>Collaboration   | First array of enriched (ZnSe)-Se-82 bolometers to search for double beta decay  | Eur. Phys. J C 76, 364 2016                                  | 5.297 | 75              |
| 3 | K. Alfonso et al.<br>CUORE<br>Collaboration   | Search for Neutrinoless Double-Beta Decay of Te-130 with CUORE-0   | Phys. Rev. Lett. 115, n10, 102502 2015                       | 7.645 | 291             |
| 2 | E Solfaroli et al.                            | A novel radioguided surgery technique exploiting beta <sup>-</sup> decays  | Sc. Rep. 4,4401, 2014  | 5.578 | 51(from Scopus) |
| 1 | D.R.Artusa et al.<br>CUORE<br>Collaboration   | Exploring the Neutrinoless Double Beta Decay in the Inverted Neutrino Hierarchy with Bolometric detectors                          | Eur. Phys. J C 74, 3096 2014                                 | 5.084 | 106             |

## Workshop/Conference Organisation

| Year | Title  |
|------|--|
| 2024 | <b>Member</b> of the Local Organising Committee of the Conference "The Rise of Particle Physics " - to be held in Sep. 2024 <a href="#">link</a>                                   |
| 2023 | 2nd International Summit on the Future of Double-Beta Decay at SNOLAB <a href="#">link</a> . Participation upon invitation only limited to Agencies and Experiment representatives |
| 2022 | <b>Convener</b> of the AstroParticle Physics Session of the European Nuclear Physics Conference (EuNPC 2022) <a href="#">link</a>  |
| 2022 | <b>Member</b> of the scientific committee of the Workshop "Double Beta Decay: the road to normal hierarchy" <a href="#">link</a>   |
| 2021 | North America - Europe Workshop on Future of Double Beta Decay <a href="#">link</a> . Participation upon invitation only limited to Agencies and Experiment representatives        |
| 2021 | Member of the organising committee of the "Celebrazione del 70esimo anno della fondazione INFN Rome"   |
| 2021 | Organiser of the CSN2 Meeting Centro Ricerche Enrico Fermi   |
| 2020 | Organiser of the CSN2 Meeting Rome Sapienza  |
| 2019 | Organiser of the CUPID Collaboration Meeting Rome Sapienza   |
| 2016 | Member of the Local Organising Committee Workshop in memory of Guido Altarelli   |
| 2011 | Member of the Local Organising Committee "Giornate romane su Particelle e Fisica Applicata"  |
| 2010 | Member of the Local Organising Committee "Incontri di Fisica delle Alte Energie"   |

## Invited lecture to Conference/Workshop/School

| Year                      | Conference/Workshop/School   | Talk Title  |
|---------------------------|--|---|
| 2-8.09.2024<br>(upcoming) | Neutrino Oscillation Workshop 2024, Otranto <a href="#">link</a>   | <i>Neutrinoless Double Beta decay: towards ton-scale experiments</i>  |
| 23-27.10.2023             | XX International Workshop on Neutrino Telescopes (Neutel), Venice, <a href="#">link</a>                    | <i>“The CUPID Double Beta Decay Experiment”</i>   |
| 6-12.09.2022              | 108 Congresso Nazionale SIF, Milano, <a href="#">link</a>  | <i>Review on “Neutrinoless Double Beta Decay”</i>   |
| 06-07.06.2022             | Workshop “Double Beta Decay: the road to normal hierarchy”, Lisboa, <a href="#">link</a>                   | <i>CUPID: Cuore Upgrade with Particle IDentification</i>  |
| 6-11.09.2021              | The 22nd International Workshop on neutrinos from accelerators Nufatc 2021, Cagliari, <a href="#">link</a> | <i>Neutrinoless Double Beta Decay search with CUPID</i>   |
| 23-28.06.2019             | Lepton Interactions with Nucleons and Nuclei, Elba, <a href="#">link</a>                                   | <i>Neutrinoless Double Beta Decay with CUORE and CUPID-0</i>  |
| 04-12.07.2018             | 7th International Conference on New Frontiers in Physics, Creta, <a href="#">link</a>                      | <i>First Result on the Neutrinoless Double Beta Decays of <math>^{82}\text{Se}</math> with CUPID-0</i>              |
| 05-12.07.2017             | HEP-EPS- European Physical Society Conference on High Energy Physics, Venice, <a href="#">link</a>         | <i>CUPID-0: a cryogenic calorimeter with particle identification for double beta decay search</i>                   |
| 30-31.05.2016             | 3rd International Meeting for Large Neutrino Infrastructures, KEK Tsukuba <a href="#">link</a>             | <i>Neutrino Mass Measurement (Double Beta) in Europe</i>  |
| 08-13.06.2015             | WIN: 25th International Workshop on Weak Interactions & Neutrinos, Heidelberg, <a href="#">link</a>        | <i>Search for <math>0\nu\beta\beta</math> decay of <math>^{130}\text{Te}</math> with CUORE-0 and CUORE</i>          |
| 1-2.12.2014               | 4th Isotope Trace Analysis Workshop AstroParticle European Research Area Network, Orsay, Paris             | <i>Status of the CUORE and CUORE-0 experiments at Gran Sasso</i>  |
| 5-6.05.2014               | “New Frontiers for Majorana fermions form condensed to dark matter” LNF Workshop                           | <i>The quest for Majorana neutrinos</i>   |
| 15-22.03.2014             | Rencontres de Moriond Electroweak Conference, La Thuille <a href="#">link</a>                              | <i>Status of the CUORE and CUORE-0 experiments at Gran Sasso</i>  |
| 23-26.09.2012             | International Workshop on Neutrino Physics and Beyond, Shenzhen, China <a href="#">link</a>                | <i>Dark Matter searches with the CUORE experiment</i>   |
| 24.06-07.07.2012          | Exotic Nuclei and Nuclear/Particle Astrophysics Summer School, Sinaia                                      | <i>The search for Majorana neutrinos with Neutrinoless Double Beta Decays: from Cuoricino to Lucifer experiment</i> |
| 14-17.11.2011             | International Workshop on Double Beta Decay and Underground Science, Osaka, <a href="#">link</a>           | <i>LUCIFER: A Scintillating Bolometer Array for the Search of Double Beta Decay</i>                                 |
| 25-29.05.2010             | FPCP: Flavour Physics and CP Violation, Torino, <a href="#">link</a>                                       | <i>Neutrinoless Double Beta Decay</i>   |
| 2009                      | Congresso INFN della Sezione di Roma   | <i>Rassegna Sperimentale sulla Fisica del Neutrino</i>  |
| 06-13.09.2008             | Neutrino Oscillation Workshop, Otranto <a href="#">link</a>  | <i>Neutrinoless Double Beta Decay search with CUORICINO and CUORE experiment</i>                                    |

|                  |   |  |
|------------------|---|--|
| 15-20.01.2007    | WIN: 21 <sup>st</sup> International Workshop on Weak Interactions and Neutrinos, Kolkata          | <i>CUORICINO results and CUORE R&amp;D</i>   |
| 21-22.10.2006    | 1 <sup>st</sup> Boulby Underground Science Workshop, York   | <i>CUORICINO results and status of CUORE</i>   |
| 01-04.10.2006    | 2 <sup>nd</sup> Topical Workshop in Low Radioactivity Technique, Aussois <a href="#">link</a>     | <i>Passive shieldings in CUORE</i>   |
| 03.09.09.2006    | 2 <sup>nd</sup> Symposium on Neutrinos and Dark Matter in Nuclear Physics, Paris                  | <i>Cuoricino results and perspectives for Cuore</i>  |
| 2006             | Universitat de Barcelona  | Invited talk: <i>Neutrinoless Double Beta Decay: Present and Future</i>  |
| 17-21.10.2005    | 9 <sup>th</sup> ICATPP International Conference on Advanced Technology & Particle Physics         | <i>Experience with Resistive Plate Chambers at BaBar</i>   |
| 28.08-01.09.2005 | COSMO05 IX International Workshop on Particle Physics and the Early Universe <a href="#">link</a> | <i>CUORICINO results and perspective for CUORE</i>   |
| 2005             | Univ. of Rome "Sapienza"  | <i>Particle Physics Seminar: Doppio Decadimento Beta: risultati da Cuoricino e prospettive per CUORE</i>                         |
| 2004             | RPCs @GIF Final Meeting, CERN   | <i>Fluorine studies on Babar RPC</i>   |
| 27-29.06.2004    | XXIV Physics in Collision, Boston <a href="#">link</a>  | Poster: <i>"Flavour Changing Neutral Current B decays at BaBar"</i>  |
| 29.05-03.06.2004 | VIII International Workshop on Meson Production, Interaction and Decays,                          | <i>Radiative B meson decays at BaBar</i>   |
| 2004             | XVI Incontro di Fisica della Alte Energie   | <i>Radiative and Leptonic Rare B-decays</i>  |
| 2003             | Società Italiana di Fisica, Congresso Nazionale 2003, Parma                                       | <i>Misura del Branching Ratio Inclusivo <math>b \rightarrow s\gamma</math></i>   |
| 2003             | Univ. of Rome "Sapienza"  | Particle Physics Seminar: <i>Decadimenti radiativi ed elettrodeboli con transizione <math>b \rightarrow s(d)</math> in BaBar</i> |
| 2000             | LNF Spring School in Nuclear Subnuclear and Astroparticle Physics, Frascati                       | <i><math>KL \rightarrow KS</math> regeneration in the KLOE detector</i>  |

Roma, li 13.07.2024

Firma