

**Curriculum Vitae
Tartaglia Roberto**

WORK

Title: Senior Researcher
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EDUCATION

1992 - 1993 Master – Health & Safety, Università degli Studi di Roma, Italy
1987 Technical Course for software and analyses programmers, ITALSIEL, Rome, Italy
1985 - 1986 Officers Course, Artillery School, Sabaudia (LT), Italy
1979 - 1985 Laurea in Ingegneria (100/100) – Corso Ingegneria Nucleare Università degli Studi di Bologna, Italy
1974 – 1979 Diploma (60/60)
Liceo Scientifico Statale “L. Da Vinci” - Pescara

CURRENT POSITION

1991 - present INFN - National Institution for Nuclear Physics- at present Senior Researcher
(Dirigente Tecnologo) - LNGS -Gran Sasso National Laboratories, Assergi (AQ), Italy

PREVIOUS POSITIONS

1988 - 1990 Fellowship @ CERN – TIS -Technical Inspection and Safety Division, Geneva, Switzerland
1987 - 1988 Employee *Data Base Programmer and Analyst* – *ORACLE Environment (SQLPLUS)*,
ITALSIEL S.p.A., Rome, Italy
1986 - 1987 Officer, Italian Army, Ravenna Italy - Chief of the Launch Section - Safety Officer

HONORS and RESPONSIBILITIES

2017 - present DarkSide Collaboration - ARIA Project Technical Coordinator. The ARIA Project consists of the realization of a unique criogenic distillation column, 350m tall, for the production of rare isotopes, useful for both the dark matter research and for possible application in

medical fields (diagnostic purposes) and in several biological and industrial developments.

2017 - 2018 Assignment of a Teaching contract for a course at Faculty of Engineering- Department of Civil and Industrial Engineering - UNIROMA1 - Roma - Safety Subjects. Course: "Safety".

2015 - 2017 Assignment of a Teaching contract for a course at Faculty of Applied Sciences and Technologies- Department of Civil Engineering-UNIMARCONI – Roma – Safety subjects.

2015 - 2016 Assignment of a Teaching contract for a course at Faculty of Engineering- Department of Civil and Industrial Engineering - UNIROMA1 - Roma - Safety Subjects. Course: "Safety in the Design, construction and start-up of the process plants".

2010 Second step in INFN career – Senior Researcher. Dirigente Tecnologo

2009 OHSAS 18001:2007 OHS Auditor Conversion Programme (IRCA/2010)
Wigan - United Kingdom - Auditor Certification

2008 Winner of a selection at CERN - fixed term contract for Safety -- HSE Unit
Renunciation for personal/family reasons

2008 - 2014 Assignment of a Teaching contract for a course at Faculty of Engineering- Department of Industrial Engineering – UNIMARCONI – Roma – Safety subjects.

2000 First Step in INFN career – Researcher. Primo Tecnologo

1997 - 2016 Head of the LNGS Prevention and Protection Service

1993 Winner of a selection for a staff position at INFN – LNGS

1992 - 2015 Responsible of the Borexino-LNGS Group

1992 - 2000 Borexino Site Manager

1991 Assigned of a fixed term contract at INFN - LNGS

1988 - 1990 Fellow, CERN, CH, Geneva, assigned to TIS Division (Safety).

1987 - 1988 Responsible of a Department in the CUP Project for Ministry of Health

1986 - Responsible of the Launch Section of a HAWK Army battery (Artillery c/a Missile)
Responsible of the Safety of a HAWK Army battery (Artillery c/a Missile)

EXPERIMENTS and COLLABORATIONS

2017 – present DarkSide, Technical Coordinator ARIA Project

2014 – present URANIA-2020 - external advisor

2009 – 2010 DarkSide (Direct Dark Matter Search) – external advisor

2004 – 2006 ILIAS - Safety Group

1991 – present Borexino (Low Energy Solar Neutrinos), Responsible of the LNGS Group up to 2015.

COMMITTEES, CONFERENCES, LECTURES

2017 - External Advisor for LSC Laboratory- T-Rex Experiment, Canfranc, Spain

2017 - European Gravitational Observatory (EGO): First health, Safety & Security and Radio-Protection meeting between INFN and CNRS National, Cascina, Italy

2017 - External Advisor for LSC Laboratory- NEXT Experiment, Canfranc, Spain

2016 - Conference on Safety and Security– Organizing Committee – L’Aquila, Italy

2016 - External Advisor for LSC Laboratory- Canfranc, Spain

2016 - International Technical Safety Forum (ITSF) – DESY - Hambourg - Germany

2015 - SAFE2015: Wessex Institute of Technology- International Conference on Risk Assessment – Opatia, Croazia

2015 - European Gravitational Observatory (EGO): Internal and External Audits of the EGO Safety Management System in order to ensure a positive outcome from the external certification body with respect to the OHSAS 18001: 2007 certification obtaining - Cascina, Italy

2014 - International Carnahan Conference on Security Technology (ICCST) – Organizing Committee - Rome, Italy

2014 - International Technical Safety Forum (ITSF) – Italian Coordinator – FNAL- FermiLab - Fermi National Accelerator Laboratory - Illinois, USA

2013 - SAFE2013: Wessex Institute of Technology- International Conference on Risk Assessment – Roma, Italia

2013 - Conference on Safety Responsibilities– Organizing Committee – L’Aquila, ITALY

- 2013 - International Technical Safety Forum (ITSF) - ESRF – Grenoble - France
- 2012- VGR - National Conference by Fire brigades (VVF) - Valutazione e Gestione del Rischio negli Insediamenti Civili e Industriali - Tirrenia (PI), Italy
- 2010 - External Advisor for DUSEL Collaboration - South Dakota, USA
- 2010 - Conference on the Safety Management System (SGSL) - Organizing Committee – LNGS, Assergi, Italy
- 2010 - International Technical Safety Forum (ITSF) – Organizing Committee – CERN, Geneva, Switzerland
- 2009 - External Auditing Committee on Safety) Committee at CERN, Geneva, Switzerland
- 2008 - 2009 European Gravitational Observatory (EGO): Advanced Virgo project: External advisor for the development of the Advanced Virgo safety management system (co-presence of scientific activities and civil works) - Cascina, Italy
- 2008 - INFN National workshops in the field of Safety – Erice (CT), Bologna (BO), Italy
- 2008 - International Technical Safety Forum (ITSF) – Organizing Committee – JLAB - Jefferson Laboratory - Virginia, USA
- 2006 - CNR Conference- D. Lgs. 626/94 e D. Lgs. 230/95 – La Formazione e la Comunicazione. Aspetti Legislativi, Metodologici e Gestionali - Monopoli (BA), Italy
- 2006 - International Technical Safety Forum (ITSF) – Organizing Committee – RAL Rutherford Appleton Laboratory - United Kingdom
- 2006 - CNR Conference- SGSL: Sistemi di Gestione della Salute e Sicurezza sul Lavoro- Trieste, Italy
- 2006 - CNR Conference- Errori ed incidenti: il rischio dovuto al fattore umano nei sistemi complessi– Bologna - Italy
- 2006 - External Advisor for HUSEP Collaboration - Colorado, USA
- 2005 - International Technical Safety Forum (ITSF) – Organizing Committee – SLAC – Stanford Linear Accelerator Centre – Stanford, CA, USA
- 2005 - National workshops in the field of Safety – LNGS - INFN
- 2004 - CNR Conference D. Lgs. 626/94: la progettazione innovativa in funzione di spazi, ergonomia, emergenza, nuovi rischi. L'accessibilità e le fruibilità per ogni livello di abilità - Isola della Maddalena (OT), Italy
- 2004 - PSAM7 – ESRELO4 - International Conference on Probabilistic Safety Assessment and Management – Berlino, Germany
- 2004 - ILIAS WP3- Working Package on Safety - member
- 2004 - National workshops in the field of Safety – Genova, Cagliari - INFN
- 2004 - INAIL National Conference - Università di L'Aquila - “La Collaborazione col Medico Competente. La Formazione dopo il D. Lgs. 195/2003”, L'Aquila, Italy
- 2003 - ENEA + INFN Conference on the Chemical Risk “La Valutazione del Rischio Chimico ed il ruolo del medico competente alla luce del D. Lgs. 25/2002” c/o ENEA – Frascati, Italy
- 2003 - CNR Conference “Sistemi di Gestione della Sicurezza” c/o Università di L'Aquila - Organizing Committee and Speaker, L'Aquila, Italy
- 2003 - International Technical Safety Forum (ITSF) – Organizing Committee and Chair - LNGS
- 2002 - CNR Conference “La prevenzione degli infortuni, l'igiene del lavoro negli ambienti della ricerca” c/o Città di Mare – Terrasini (PA), Italy
- 2002 - Workshop INFN “Giornate di Studio in Materia di Sicurezza negli ambienti di lavoro dell'INFN” Organizing Committee and Speaker- LNGS, Trieste, LNS (Catania), Italy
- 2002 - Workshop INFN “Giornate di Studio in Materia di Sicurezza negli ambienti di lavoro dell'INFN” Organizing Committee and Chair Committee and Speaker- LNGS, Trieste, LNS
- 2001 - International Technical Safety Forum (ITSF) – Organizing Committee – FNAL- FermiLab - Fermi National Accelerator Laboratory - Illinois, USA
- 2000 - DPI-2000 - Conference - Il ruolo dei Dispositivi di Protezione Individuale nell'ambito della Prevenzione - [Co-autore] - Modena, Italy

PROFESSIONAL SERVICES and MEMBERSHIPS

- 1987 – present – Registered into the official “board” of professional Engineers – Pescara

RESEARCH INTERESTS

Senior researcher, wide and remarkable expertise in different fields related to safety (HSS - Health, Safety and Security at work).

Moreover, good experience in the field of Technology research and Group Management, Leadership and Coaching.

These fields can be summarized as follows.

- * Risk Assessment: application of both Loss Prevention techniques (DOW and HAZOP methodologies) and reliability techniques in the evaluation of safety criteria adopted and to be adopted in process plants related to experimental apparatuses.
- * Organization and management of the Safety of the Laboratories, with particular care to the improvement of the safety requirements for the Experiments @ LNGS and to the definition of the rules and procedures to be respected in the safety fields, as Responsible of the Prevention and Protection Service.
- * Member of National and International Committees in the Safety field: Safety tutoring and teaching.
- * Safety & Security:
Emergency procedure and evacuation plans.
Risk Assessment, Safety Management, Access Monitoring and Control, Training and Education. The LNGS have been classified as "Activities at risk of major accident" since 2002. All the foreseen Risk Assessment, the Safety Report and the study and implementation of a Safety Management System have been accomplished accordingly.
- * Engineering:
Chemical Processes, CFD (Computational Fluid Dynamics), Mechanical and Process Plant, Safety Plants, Nuclear Plants. Designing and realization of clean room environment suitable for research purposes: in particular, member of the Tender Committees both for the BOREXINO and VIRGO Clean Rooms.
- * Management:
Business Administration, budget planning, time planning/scheduling.
Organization and management of all the "on-site" works performed during the installation and realization of a prototype of the BOREXINO Experiment, a real-time detector in the field of solar neutrino research. Local Responsible of the BOREXINO LNGS-Group; the annual budget is of about 0.5 Million \$. The total budget foreseen for the Detector is of about 40 Million \$. The realization and the filling of the Detector has been completed in May, 2007. Currently we are in the phase of data taking and analyses.
A large number of tenders for the various components and plants developed and managed (technical specifications, and so on).
Elected "RUP = Responsabile Unico del Procedimento" for different tenders both for works, supplying and services. Currently serving as RUP for the firemen and guards services at LNGS.
Since September 2016 participation to a working group devoted to the study and analyses of possible guidelines for the realization of a monitoring and access control for the four INFN Laboratories. The job activity has been completed in June 2017: the next step will be the definition of the technical specification for the needed tender.
Proven ability of good interaction with public Authorities- local and national.
- * Crisis Management:
The LNGS have been subjected to an "extraordinary regime" in the period 2003 - 2007. During this period, particular care has been done and guaranteed to the coordination of all the activities, to the interaction with the local Authorities and to the rightest interconnection with the local population. Mid and long-term programming and day-by-day coordination of the activities of the Laboratories as a function of the concurrent activities of the Extraordinary Commissioner for the emergency of the Gran Sasso have been assured. Particular attention has been given to the revision and communication of access control updates, the "dynamic" definition of controlled access areas, the ongoing updating of the internal emergency plan, the organization of site logistics.
- * Radio-Protection:
The current LNGS Organization foresees the Radio-Isotopes Bank Department as one of the Units managed by the Responsible of the Prevention and Protection Service. Together with the "Certified Expert" (EQ) and with the technician of the Radio-Isotopes Bank Unit, the practices for all the authorization have been carefully looked after up to the final approval by the competent Authorities
- * Physics:
Solar and Supernova Neutrinos; Dark Matter.
Low-counting experiments and background.
Distillation Processes for rare isotopes production.

GRANTS AWARDED (EU Project member)

2016 - ARIA
 2014 - URANIA-2020
 2004 - ILIAS WP on Safety

TEACHING, EDUCATION, OUTREACH

2017 - present UNIROMA1- Faculty of Engineer -
 Department of Civil and Industrial Engineering-
 Subject: "Safety".

2015 - present UNIMARCONI– Faculty of Applied Science and technology –
 Department of Civil Engineering –
 Subject: “Risk and Safety in worksite and in the infrastructures”

2015 - 2016 UNIROMA1- Faculty of Engineer -
 Department of Civil and Industrial Engineering-
 Subject: "Safety in the Design, construction and start-up of the process plants".

2008 - 2014 UNIMARCONI– Faculty of Engineer – Department of Industrial Engineering –
 Subject: “Risk and Safety in the high-risk plants”

Different sessions as invited teacher and/or tutor in local, national and international environment; educational, training and professional courses, both with professional registered orders (Technicians, Engineers), associations and private companies.

During the LNGS activities, continuous training and education to the LNGS Users: 30 courses per year both in Italian and English languages. A total amount (averaged) of about 500 users are attending the safety briefing courses every year. These numbers have been accounted keeping into consideration both users and external companies employees.

PERSONAL SKILLS AND COMPETENCES

Mother Tongue Italian

Other Languages English - fluent

	Understanding		Speaking		Writing
English	excellent		excellent		excellent
	Listening	Reading	Spoken Interaction	Spoken Production	
	c2	c2	c2	c2	c2

Skills and Expertise

Knowledge of Operating Systems: Windows, Mac Os X;
 Monte Carlo: FLUKA, Languages: FORTRAN, COBOL, SQLPLUS
 Software Packages: MS-Office, MS-Project, Autocad, Filemaker Pro, Adobe
 Relx Software; Star-CCM plus (CFD Simulation);
 Proven knowledge of project management, scheduling, organizing and estimated procedures. Proven effective verbal and written communication skills.
 High level of technical skills: proven ability to guarantee that research commitments are properly performed. Proven ability to lead and to work with others and to work as a member of a large multi-disciplinary research team. - teamwork - leadership and coaching.
 Author or contributor to conference papers, laboratory reports and refereed journal articles. Author or contributor to prepare technical reports, publications, and presentations, and materials for internal and external audiences

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

Student Advised

A total number of about 40 students have been directly followed during the co-operation with UnivAQ, UNIROMA1 and other Engineering Departments- all the thesis have been focused on different safety subjects, such as "Risk and Safety Assessment".

Currently, 1 students as engineer. The degree has been scheduled in Spring of 2020.

Moreover, 4 students as junior engineer. The degree has been scheduled by the end of 2019.

A total number of about 20 students have been directly followed during the teaching period @ UNIMARCONI- different thesis on the following safety subjects: "Risk and Safety in worksite and in the infrastructures".

Moreover, a total number of about 10 students have been directly followed during the teaching period @ UNIMARCONI- different thesis on the following safety subjects: "Risk and Safety in the high-risk plants".

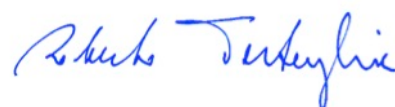
In the last years, fully involved in the fellowship program funded by the Abruzzi Region thanks to the European training funds. Moreover, some fellowships are also coming from INFN fellowship program, whose length is of 24 months. Here a list of fellowship whose "tutoring" or "teaching" has been guaranteed follows:

2017 - 2018	Perruzza Roberto -	INFN fellowship for Senior graduates
2016 - 2018	Castri Daniele -	INFN fellowship for graduates
2016 - 2017	Gabriele Federico -	INFN fellowship for Senior graduates
2014 - 2016	Perruzza Roberto -	INFN Research Grants
2012 - 2014	Perruzza Roberto -	INFN fellowship
2009 - 2011	Venti Isa -	INFN fellowship
2007 - 2009	Montanari David -	INFN fellowship
2007 - 2009	Caprara Mario -	INFN fellowship - undergraduate
2004 - 2005	Battistelli Sara -	INFN fellowship - undergraduate
2003 - 2005	Tobia Marco -	INFN fellowship
1998 - 2000	Gazzana Stefano -	INFN fellowship
1998 - 2000	Goretti Augusto -	INFN fellowship
2014 - 2016	Musti Mafalda -	EU - POR fellowship for graduates
2014 - 2016	Ranalli Maria Teresa -	EU - POR fellowship for graduates
2013 - 2014	Paris Michela -	EU - POR fellowship for graduates
2013 - 2014	Castri Daniele -	EU - POR fellowship for graduates
2013 - 2016	Gabriele Federico -	EU - POR Research Grants
2012 - 2014	Bonfini Giuseppe -	EU - POR Research Grants
2010 - 2011	Gabriele Federico -	EU - POR fellowship for graduates
2010 - 2011	Bonfini Giuseppe -	EU - POR fellowship for graduates
2007 - 2008	Bonanni Fabio -	EU - POR fellowship for undergraduates
2007 - 2008	Di Vincenzo Luca -	EU - POR fellowship for undergraduates

Assergi (AQ), Italy

Wednesday, September 25, 2019

Roberto Tartaglia



Publications

A total amount of more than 100 papers have been signed as co-author: about 30 papers deal with safety subjects, while the other (more than 70) are on Physics subjects.

Here a list of the publications published in the period 2013 - 2018 follows (reverse chronological order).

- [I] M. Agostini et al. (The Borexino Collaboration), "Comprehensive measurement of pp-chain solar neutrinos"
[Nature volume 562, pages505–510 \(2018\)](#)
- [II] P. Agnes et al. (The DarkSide Collaboration), "DarkSide-50 532-day Dark Matter Search with Low-Radioactivity Argon",
[arxiv:1802.07198](#) .
- [III] M. Agostini et al. (The Borexino Collaboration), "First Simultaneous Precision Spectroscopy of pp , ^7Be , and pep Solar Neutrinos with Borexino Phase-II", [arxiv:1707.09279](#).
- [IV] P. Agnes et al. (The DarkSide Collaboration), "Constraints on Sub-GeV Dark Matter-Electron Scattering from the DarkSide-50 Experiment", [Physical Review Letters 121, 111303 \(2018\)](#).
- [V] P. Agnes et al. (The DarkSide Collaboration), "Low-mass Dark Matter Search with the DarkSide-50 Experiment",
[Physical Review Letters 121, 081307 \(2018\)](#).
- [VI] P. Agnes et al. (The ARIS Collaboration), "Electroluminescence pulse shape and electron diffusion in liquid argon measured in a dual-phase TPC", [Nuclear Instruments and Methods A 904, 23 \(2018\)](#).
- [VII] C.E. Aalseth et al. (The DarkSide Collaboration), "DarkSide-20k: A 20 tonne two-phase LAr TPC for direct dark matter detection at LNGS", [The European Physical Journal Plus 133, 131 \(2018\)](#) .
- [VIII] M. Agostini et al. (The Borexino Collaboration), "The Monte Carlo simulation of the Borexino detector",
[Astroparticle Physics 97, 136 \(2018\)](#).
- [IX] F. Borghini, F. Garzia, M. Lombardi, M. Mete, R. Perruzza, R. Tartaglia - "Human factor analysis inside a peculiar job environment at the gran sasso mountain underground laboratory of italian national institute for nuclear physics" - International Journal of Safety and Security Engineering, Vol. 8, No. 3 (2018) 390–405 - WIT
- [X] F. Garzia, M. Guarascio, E. P. Giovannone, A. Giampaoli, M. Lombardi, M. Musti, M. T. Ranalli, R. Perruzza, R. Tartaglia - "Risk analysis and reliability of the GERDA Experiment extraction and ventilation plant at Gran Sasso mountain underground laboratory of Italian National Institute for Nuclear Physics" - REM: R. Esc. Minas, Ouro Preto, 70(3), 323-331, jul. sep. | 2017
- [XI] P. Agnes et al. (The DarkSide Collaboration), "CALIS-A CALibration Insertion System for the DarkSide-50 dark matter search experiment", [Journal of Instrumentation 12, T12004 \(2017\)](#)

- [XII] P. Agnes et al. (The DarkSide Collaboration), "The electronics, trigger and data acquisition system for the liquid argon time projection chamber of the DarkSide-50 search for dark matter", [Journal of Instrumentation 12, P12011 \(2017\)](#).
- [XIII] C.E. Aalseth et al. (The DarkSide Collaboration), "Cryogenic Characterization of FBK RGB-HD SiPMs", [Journal of Instrumentation 12, P09030 \(2017\)](#).
- [XIV] M. Agostini et al. (The Borexino Collaboration), "A Search for Low-energy Neutrinos Correlated with Gravitational Wave Events GW 150914, GW 151226, and GW 170104 with the Borexino Detector", [The Astrophysical Journal 850, 21 \(2017\)](#).
- [XV] M. Agostini et al. (The Borexino Collaboration), "Limiting neutrino magnetic moments with Borexino Phase-II solar neutrino data", [Physical Review D 96, 091103 \(2017\)](#).
- [XVI] M. Agostini et al. (The Borexino Collaboration), "Seasonal Modulation of the 7 Be Solar Neutrino Rate in Borexino", [Astroparticle Physics 92, 21 \(2017\)](#).
- [XVII] P. Agnes et al. (The DarkSide Collaboration), "Simulation of argon response and light detection in the DarkSide-50 dual phase TPC", [Journal of Instrumentation 12, P10015 \(2017\)](#).
- [XVIII] P. Agnes et al. (The DarkSide Collaboration), "Effect of Low Electric Fields on Alpha Scintillation Light Yield in Liquid Argon", [Journal of Instrumentation 12, P01021 \(2017\)](#).
- [XIX] M. Agostini et al. (The DarkSide Collaboration), "Borexino's search for low-energy neutrino and antineutrino signals correlated with gamma-ray bursts", [Astroparticle Physics 86, 11 \(2017\)](#).
- [XX] M. Agostini et al. (The Borexino Collaboration), "Test of Electric Charge Conservation with Borexino", [Physical Review Letters 115, 231802](#).
- [XXI] F. Nusca, R. Perruzza, R. Tartaglia, M. Tobia - "FDS+Evac models and Cryogenic & Oxygen deficiency emergency management for underground facilities in Gran Sasso National Laboratories" - 06-08/05/2015 SAFE2015 - Safety and Security Engineering VI - WIT
- [XXII] G. Bellini et al. (The Borexino Collaboration), "Neutrinos from the primary proton-proton fusion process in the Sun", [Nature 512, 383 \(2014\)](#).
- [XXIII] G. Bellini et al. (The Borexino Collaboration), "Final results of Borexino Phase-I on low energy solar neutrino spectroscopy", [Phys. Rev. D 89, 112007 \(2014\)](#)
- [XXIV] G. Bellini et al. (Borexino Collaboration), "Cosmogenic Backgrounds in Borexino at 3800 m water-equivalent depth", [arxiv:1304.7381 \(2013\)](#).
- [XXV] G. Bellini et al. (Borexino Collaboration), "Measurement of geo-neutrinos from 1353 days of Borexino", [Physics Letters B 722, 295 \(2013\)](#)

TALKS AND PUBLICATIONS ON CONFERENCE PROCEEDINGS

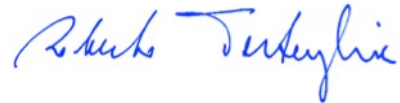
- [I] D. Castri, A. Giampaoli, M. Musti, R. Perruzza, M.T. Ranalli, R. Tartaglia - "Application and Results of the Gran Sasso National Laboratory Safety Management System: A Near-accident Case Study" - ITSF - International Technical Safety Forum presso DESY- 2016)
- [II] D. Castri, A. Giampaoli, M. Musti, R. Perruzza, M.T. Ranalli, R. Tartaglia - "Interactive and Informative Tools for the Users and Activities Management in the peculiar site of Gran Sasso National Laboratories" - ITSF - International Technical Safety Forum presso DESY- Amburgo - 2016)
- [III] F. Borghini, F. Garzia, M. Lombardi, M. Mete, R. Perruzza, R. Tartaglia - "Interactive and Informative Tools for the Users and Activities Management in the peculiar site of Gran Sasso National Laboratories" - ITSF - International Technical Safety Forum presso DESY - Amburgo - 2016).
- [IV] D. Castri, A. Giampaoli, M. Musti, R. Perruzza, M.T. Ranalli, R. Tartaglia - "Fire Events in the motorway tunnel: criticality and management of the event in the Gran Sasso Underground Laboratories" - ITSF - International Technical Safety Forum presso DESY- Amburgo 2016)
- [V] F. Nusca, R. Perruzza, R. Tartaglia, M. Tobia - "FDS+Evac models and cryogenic and oxygen deficiency emergency management for underground facilities in Gran Sasso National Laboratories" - presso SAFE 2015 - Opatia (HR) - 2015.
- [VI] G. Bonfini, F. Gabriele, A. Giampaoli, A. Goretti, An. Ianni, R. Perruzza, R. Tartaglia - "Application and results of the Gran Sasso National Laboratory Safety Management System: A Near-accident Case Study " - ITSF - International Technical Safety Forum presso FNAL - FERMILAB, Batavia , Chicago (USA, IL) - 2014
- [VII] R. Perruzza, R. Tartaglia, M. Tobia - "Risk management and safety coordination through interactive models for the construction sites of XenonIT in the Gran Sasso National Laboratory" - ITSF - International Technical Safety Forum presso FNAL - FERMILAB, Batavia , Chicago (USA, IL) - 2014
- [VIII] F. Gabriele, A. Giampaoli, R. Perruzza, R. Tartaglia, M. Tobia - "Emergency management & emergency plan of Gran Sasso National Laboratories: organization and results of the emergency drill for the Underground Laboratories" - ITSF - International Technical Safety Forum presso FNAL - FERMILAB, Batavia , Chicago (USA, IL) - 2014

[IX] G. Farina, A. Giampaoli, R. Perruzza, R. Tartaglia, M. Tobia -
"Fire risk analysis with a performance-based fire safety
engineering approach and FDS models for underground facilities in
Gran Sasso National Laboratories" - presso SAFE 2013 - Roma (I) -
2013.

[X] A. Giampaoli, R. Perruzza, M. Tobia, R. Tartaglia, "Emergy
management & emergency plan of Gran Sasso National Laboratories:
underground laboratories and motorway tunnels", presso SAFE 2013 -
Roma

Assergi (AQ), Italy
Wednesday, September 25, 2019

Roberto Tartaglia



Europass curriculum vitae

Personal information

Surname Name

Lombardi Paolo

Address

Phone

Mobile

E-mail

Nationality

Italian

Date of birth

Sex

Male



Job Position

Primo Tecnologo II livello – Istituto Nazionale di Fisica Nucleare – from 2009

Work experience

Dates

15.05.1996 [see attachment h]

Position

I.N.F.N. fellow at L.N.G.S.

Activities and responsibilities

BOREXINO EXPERIMENT (1996 – 1997)

- I made an electronic chain for alpha / beta discrimination study ("Pulse Shape Discrimination") using the ratio method "tail / total"; Monte Carlo simulation of the whole physical process and comparison with experimental data; [ref. 2];
- I worked on a data acquisition system for 2200 Borexino photomultipliers: characterization of the "Single Photoelectron Peak", "Transit Time Jitter" and "After Pulses" [ref. 16];
- I designed and built an optical bench for attenuation and distribution of a 50 ns laser pulse (solid-state laser) [ref. 14];
- I realized a 6 coils system for earth's magnetic field compensation [ref. 1];

Name and address of the company

L.N.G.S., SS 17bis km 18,910 67010 Assergi (Aq)

Field

Scientific Research

Dates

15.11.1997 [see attachment i], [see attachment j]

Position

Fellow at "Consorzio Milano Ricerche" "Experimentation of phototube sealing techniques"

Activities and responsibilities

BOREXINO EXPERIMENT (1997 – 1999)

- I was responsible for technical and commercial research for development of a submarine coaxial connector as well as for a coaxial cable with a double water barrier: materials chemical compatibility study, aging effects ("Accelerated Ageing Test") and electrical characteristics of the entire connection ("VSWR", "Attenuation Loss", "Noise Pick-up", "Ground Loop") [ref. 3];
- I was responsible for steel capsule mechanical design for phototubes sealing [ref. 3];
- I've done test and commercial research for resins selection for phototubes potting: material compatibility in long term immersion in ultra-pure water and pseudocumene ("Accelerated Ageing Test"), study of potting "thermomechanical stress" finite element programs (ANSYS) [ref. 3];
- I was responsible for sealing techniques of Borexino and CTF phototubes [ref. 3];
- I design mechanics of pressure water tanks (2 m³ each) for pressure testing of 60 photomultipliers at a time: systematic verification of sealing reliability;

Name and address of the company

Consorzio Milano Ricerche Via Cicognara, 7 20129 Milano

Field

Scientific Research

Dates	17.05.1999 – 22.12.1999
Position	Tecnico Commerciale II livello (1999 – 2000)
Activities and responsibilities	<ul style="list-style-type: none"> - I opened and directed a subsidiary company in Milan to follow North Italian Market of Pansystem; - Design and marketing of electromechanical equipment for use in military and aerospace companies (Alenia Marconi, Agusta, Fiar defense, etc...);
Name and address of the company	Pansystem S.r.l. Via Colleverde 16, 00131 Roma
Field	Design and distribution
Dates	10.01.2000 [see attachment l], [see attachment m], [see attachment n]
Position	Tecnologo III livello I.N.F.N. sez. di Milano
Activities and responsibilities	<p>BOREXINO EXPERIMENT (2000 – up to now)</p> <ul style="list-style-type: none"> - “Detector Installation Manager” [see attachment bb] (2000 - 2005) of Borexino experiment with responsibility for the oversight and coordination of all technical installations in the detector as well as the organization of the technical staff at crucial stages of the experiment. Simultaneous installation activities on the detector with several Italian and foreign groups required from me a large commitment in technical decisions, logistics and coordination [ref. 31]; - I designed and tested a magnetic shielding for the phototube (Earth's magnetic field compensation). Identification of a ferromagnetic material ("mu-metal") with low radioactivity and selection of a paint coating as barrier against both pseudocumene and water [ref. 31]; - I have designed the mechanical mounting of phototubes on steel sphere: electrical decoupling, vacuum seal with a special low radioactivity high fluorine Viton O-ring (limited radon emanation and excellent compatibility with pseudocumene) [ref. 31]; - I have designed and tested the electrical connection system of photomultipliers: divider design and interface with electronic front-end [ref. 31]; - I designed a mechanical structure able to locate, in a prearranged and inventoried manner, the excess length of the 2200 signal cables (≈ 30 km) [ref. 31]; - Coordination of cleaning activities in class 100 clean rooms for cables, photo tubes, assembly of mechanical parts, "mu-metal" shielding and light concentrators. Drafting of procedures; - Coordination of all installation activities for 2200 signal cables. I coordinated 16 people (researchers and technicians) for a total period of six months with two daily shifts taking care of all the associated logistics for supply and transport of materials [ref. 31]; - I designed a custom Argon based mass spectrometer (Leybold quadrupole) for checking leak tightness of BOREXINO PMTs feeds-through by RGA (Residual Gas Analyser) technique. I have also coordinated all the tests on each phototube seal; - I direct measurement activities on 2,200 photomultiplier tubes ("dark room" and "Ageing Test") for devices characterization, prior to assembly in the detector. The group I coordinated was composed of 6 persons for a total period of six months [ref. 17]; - I coordinated the installation of phototubes on BOREXINO sphere using custom made circular scaffolding. The special geometry, the height of the scaffolding (13 m) and the absolute cleanliness of environment required my special attention in the coordination of 16 people in two shifts for a total period of 8 months; - I designed the “Preliminary plan for a pavement isolation system” for the Hall C of Underground Gran Sasso Laboratories on behalf of the INFN President. I also transferred the project to commissioner staff for the Gran Sasso emergency with a broad and close cooperation throughout the construction period in Hall C [ref. 15]; - “Chief Engineer” [see attachment dd] (From February 2005 up to now) and “Vice Project Manager” [see attachment cc] (October 2002/2005) on behalf of the Borexino collaboration with responsibility for the coordination of all the technical planning and works mutual integration; <ul style="list-style-type: none"> - I participated in technical coordination of all air cleaning operations to achieve stringent levels of radio-purity required by the experiment; - I assumed logistical and technical coordination of the plant (Polimeri Europa) in Sardinia for the pseudocumene supply: activities related to maintenance after 3 years of downtime and plant commissioning [ref. 37]; - I directed and coordinated operations for closing the 3 m steel sphere door. Leak tightness was assured by a 3 m diameter metal gasket (helicoflex). The sealing certified at the level of 10^{-6} mbar.L/s by an helium spectrometer;

“TERZA MISSIONE” Technology Transfer

Name and address of the company

Field

Dates

Position

Activities and responsibilities

- I made all mechanical calculations, direction and coordination for closing the huge 4 m x 4 m door of the external BOREXINO tank. The door, 7 tons weight, is equipped with a double rubber seal, double tie rods and side clips (hydrostatic pressure greater than 100 tonnes);
- I assumed technical coordination of Borexino plants maintenance, as required by regulations;
- I worked on installation activities for source insertion system (calibration 'on and off axis'), glove box, sliding seal, zero buoyancy rods, laser, etc. [ref. 44];
- I worked on calibration campaign (6 weeks) with 12 different sources and sampling of more than 100 positions within Inner Vessel volume. [ref. 44];
- **Data Analysis:** I personally worked on solar neutrinos spectrum analysis, on the global fit of the spectrum, on the study of neutrons and ^{11}C suppression, on alpha / beta analysis and statistical alpha subtraction (with Gatti filter). [ref. 22, 26, 27];
- I was responsible and author for photomultiplier sealing procedures: technology transfer to the company “**Electron Tubes Limited**” in London, during a total period of 5 weeks spent at company site [see attachment o], [see attachment p];

I.N.F.N. Sez. di Milano Via Celoria 16 20133 Milano

Scientific Research

10.01.2009 [see attachment ff]

Primo Tecnologo Il livello I.N.F.N. Sez. di Milano

DARKSIDE EXPERIMENT (2010 – 2015)

- “**Chief Engineer**” [see attachment gg] (from February 2011 to 2014) on behalf of DarkSide experiment, responsible for oversight and technical coordination of all mechanical design and installations in the detector [ref. 54], [ref. 55];

In details:

- I was responsible for the decommissioning and dismantling of the CTF (Counting Test Facility);
- I designed the stainless steel sphere for neutron veto;
- I designed, up to the preliminary drawings, the stainless steel cryostat for the TPC;
- I designed the anchor and levelling system of the stainless steel cryostat;
- I designed the clean room and of loading systems (crane) inside the former CTF clean room;
- I designed the integration of all installations inside the detector with 3D CAD tools;
- I was responsible for testing and for sealing of 110 high quantum efficiency Hamamatsu phototubes for the neutron veto (SBK) [ref. 74];
- I designed a mu-metal cage (grid) to mitigate the effect of Earth's magnetic field on PMT's while maximizing the light collection [ref. 74];
- I coordinated all installation activities for muon veto, neutron veto and cryostat [ref. 74];
- I was the Technical Coordinator of source insertion system for neutron veto / TPC [ref. 75];
- I was the Technical Coordinator for the insertion system of SABRE crystals inside DS-50;
- I was the Technical Coordinator of Dark Side 20T preliminary mechanical design (up to 2015) [ref. 66];

- I proposed, installed and maintained the “**CTF monument**” at LNGS. Design and printing of the aluminium plaque in front of the monument. The installation has a strong impact in Outreach and Dissemination for all the LNGS visitors;

SOX EXPERIMENT (2013 – 2018)

- “**Chief Engineer**” [see attachment hh] for SOX experiment, responsible for oversight and technical coordination of all mechanical design of the experiment and all installations inside the detector [ref. 51];
- I made the mechanical design of the 3 tons tungsten container (biological shielding for neutrinos generator) [ref. 72];
- I performed the thermomechanical analysis with FEM (ANSYS) of the source/tungsten system;
- I participated in calorimeter working group (accurate measurement of the neutrinos generator) [ref. 72];
- I designed source handling systems (3 tons) both for the clean room and for the tunnel under the Borexino experiment (custom winches, rails, trolleys, etc...);

“TERZA MISSIONE” Outreach and Dissemination

Activities and responsibilities

Activities and responsibilities

- I coordinated and supervised the Risk Analysis for handling of the anti-neutrinos generator;
- I coordinated and technical supervised, with the French group, the antineutrinos generator (tungsten, container source and calorimeter);
- I designed the integration of all installations and upgrades in the Borexino detector by means of 3D CAD tools;
- I coordinated the logistics and the source transportation issues with authorized companies: NUCLECO, ENEA, MIT, SRS, AREVA;
- Transportation Cask: user/coordinator certification by AREVA company (TN-MTR – 23 tons) [see attachment qq];
- I coordinated the official rehearsal test with ISPRA and AREVA supervisors: radiation controlled area coordination, handling of TN-MTR, source transportation, source insertion under Borexino (20 workers for 2 wks);
- **“SOX Project Manager”**: setting up the global SOX schedule with GANTT and PERT charts, and Work-Package;

JUNO EXPERIMENT (2013 – up to now)

- **Project Manager for Italian JUNO collaboration (2013 up to now)**
- I coordinate the R&D on new large area photomultipliers (20") either with traditional dynodes or with hybrid technologies (Multi Channel Plate):
- I upgraded the Dark Room test system in Gran Sasso with new fast digitizers and PXI bus using LabVIEW based acquisition system;
- I designed and implemented voltage dividers optimized for new Chinese MCP-PMTs;
- I measured *Single Photoelectron Peak, Transient Time Jitter e After Pulses*;
- I measured of earth magnetic field influence on new MCP-PMTs;
- **JUNO L2 Manager for Liquid Scintillator Group (2013 up to now):**
- Linear Alkyl Benzene (LAB): I selected the best producer, the best purification technique and optimal cocktails formula;
In details:
- I realized in Milan a laboratory setup to study the characteristics of new eco-friendly scintillators: mechanical setup, electronic chain, acquisition program (LabVIEW) for digitizer boards (2 GS/s on PXI bus) and data analysis by RooFit package [ref. 52];
- I measured the time response on scintillator samples by single photoelectron technique: coordination of undergraduate and graduate students;
- I evaluated the alpha-beta discrimination performance with optimal method ("Gatti filter") including response to the proton recoil induced by neutrons [ref. 52];
- I measured Absorption spectra with a dual ray UV-VIS spectrophotometer;
- I designed, constructed and operated an innovative Scintillator Attenuation Length Apparatus ("SALA") with a 430 nm laser source using a multi reflection technique in a 1.5 m long tube;
- I performed Chemical and Optical compatibility of LAB with different materials (ageing test);
- **Purification Plant Chief Engineer:**
- I designed two purification pilot plants: Vacuum Distillation and Steam Stripping (flow rates: 100 kg / h);
- **RUP** for two International Tenders for pilot plants construction. Tender total budget: 620.000 €;
- I made the Pilot plants installation and commissioning at Daya Bay underground laboratory in China (8 wks);
- Daya Bay detector filling with 20.000 kg of Linear Alkyl Benzene purified with Distillation and Stripping plants: I coordinated a team of 12 people for 3 month (3 purification campaigns);
- I designed the final distillation and steam stripping plants to be installed in China at JUNO site (flow rate 7000 kg / h and 1 Megawatt power) [see attached P&IDs];
- **RUP** for International Tender for JUNO plants construction. Tender budget: 5.200.000 €
Administrative and technical management of the tender ("Capitolato Tecnico", "Disciplinare di Gara", "Condizioni contrattuali", "Portale Simog e Anac", "Gestione ed esecuzione dei lavori");
- **JUNO Technical Board Member (2013 up to now):**
- Chairman of several internal collaboration reviews e.g.: "PMT Instrumentation", "LS filling";
- Member of several international reviews e.g.: "NNVT MCP-PMT", "Acrylic Production Readiness Review of JUNO Central Detector";

External Grants

Dates 2016 – up to now

INFN Role **Dark Side 20T Referee member for “INFN Commissione II”**

Dates 2015 – 2016
INFN Role

Technical Reviewer for Km3Net project, appointed by “Presidente di Comm. II”

Dates 2010 - 2011
Role **WARP Review Committee member**, appointed by “Presidente di Comm. II”

Dates 2016 – up to now
Role Appointed to the **Editorial Board** for the scientific magazine “**Radiation Detection Technology and Methods**” [see attachment rr]

Dates 2000 – 2006 [see attachment aa]
Position **Contract Professor at Università di Fisica di Milano**

“TERZA MISSIONE”

Education dissemination

Name and address of the company

Field

- Course “*Laboratorio di fisica subnucleari*”, years: 1999/2000, 2000/2001, 2001/2002, 2002/2003, 2003/2004, 2004/2005 e 2005/2006 [see attachment aa];

Università degli Studi di Milano, Dipartimento di Fisica, via Celoria, 16 20133 Milano

Teaching

Education and training

Dates 1996

Academic degree

Graduation thesis

Name and address of the University

University degree in Nuclear Engineering - Full marks with Honour [see attachm. fj]

“*Discriminazione alfa/beta e caratteristiche di risposta dei fotomoltiplicatori dell'esperimento Borexino*”

Facoltà di Ingegneria del Politecnico di Milano Piazza Leonardo da Vinci 32, 20133 Milano

Dates 1997

Academic degree

Name and address of the University

Engineering State Certification [see attachment g]

Facoltà di Ingegneria del Politecnico di Milano Piazza Leonardo da Vinci 32, 20133 Milano

Refresher courses and certifications

[see attachment k, o, q, r, s, t, u, v, w, x, y, z, ii, jj, kk, ll, mm, nn, oo, pp, qq, rr]

- “*International School of Erice*”;
- Certificate for the “*Technology transfer activities carried out at the firm “ETL”*”;
- “*Tecnologie del vuoto e ultravacuo*”;
- “*Corso avanzato di tecnologia del vuoto*”;
- “*Rischi elettrici e meccanici nell’INFN*”;
- “*Operatori apparecchi di sollevamento*”;
- “*Addetti ai carrelli elevatori*”;
- “*Formazione alla sicurezza per gruisti*”;
- “*Preposto con funzione di sorvegliante dei lavoratori addetti ai sistemi di accesso e posizionamento mediante funi*”;
- “*Lavoratori addetti ai sistemi di accesso e posizionamento mediante funi*”;
- “*Corso base di HTML*”;
- “*Corso ANSYS termica avanzato*”;
- “*Addetto utilizzo apparecchi di sollevamento*”;
- “*Gestione dell'emergenza e lotta antincendio nei luoghi di lavoro*”;
- “*Aggiornamento Lavoratori addetti ai sistemi di accesso e posizionamento mediante funi*”;

Conferences talks, proceedings and posters

- "Aggiornamento Preposto con funzione di sorvegliante dei lavoratori addetti ai sistemi di accesso e posizionamento mediante funi";
- "English: Upper way stage 2", Wall Street Institute;
- "NX Modelling / Assembly / Sheet Metal e Drafting";
- "Corso di Radioprotezione";
- "Orbital Welding specialized operator";
- AREVA International Training certificate on Nuclear Transportation Cask TN-MTR
- Appointed to the Editorial Board of "Radiation Detection Technology and Methods"
- TAUP 1997, 7-11 September 1997, Laboratori Nazionali del Gran Sasso (Italy)
- 10th ICATPP Conference on Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications, Villa Olmo, Como 5-9 October 1998
- 9th Vienna Conference on Instrumentation Vienna / Austria, February 19 - 23, 2001
- NDM03 - Neutrinos and Dark Matter in Nuclear Physics, June 9-14, 2003, Nara Japan
- Future low energy neutrino experiments, 23-25 Feb 2005 Angra dos Reis, Brazil
- 10th ICATPP Conference on Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications, Villa Olmo, Como 8-12 October 2007
- Neutrino 2008 - The XXIII Conference on Neutrino Physics and Astrophysics, 25 - 31 May 2008 Christchurch – New Zealand
- 13th ICATPP Conference on Astroparticle, Particle, Space Physics and Detectors for Physics Applications, Villa Olmo, Como 3-7 October 2011
- International Symposium on Neutrino Physics and Beyond, 23-26 Sep 2012, Shenzhen China
- China-Italy Science, Technology and Innovation Week, 16-20 Nov 2015 Beijing, China

Personal skills

English

UNDERSTANDING				
LISTENING		SPEAKING		WRITING
C1	C1	B2	B2	B1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

Communication skills

- Group interactions: I worked in research groups as coordinator and I participated in manufacturing groups in a business company;
- Intercultural interactions: my experience at INFN led me to interact with international collaborations in Italian and foreign laboratories;

Organisational / managerial skills

- Day by day planning, schedule and personnel management [see attachments bb, cc, dd, gg, hh] during various management positions: "**Detector Installation Manager**", "**Chief Engineer and Chairman Technical Board**" and "**Vice Project Manager**" for Borexino, "**Chief Engineer**" for DarkSide, "**Chief Engineer**" and "**Project Manager**" for SOX, "**Italian Project Manager**", "**Purification Plant Chief Engineer**" and "**Technical Board Member**" for JUNO;
- During my work at private company, I opened and directed a new subsidiary company in Milan taking care of commercial management and technical area coordination;
- In Milan I realized and I am still directing a laboratory for scintillators and photomultipliers characterization with the coordination of undergraduate and graduate students [ref. 52];

Technical skills

- Electronic instruments: acquisition systems based on NIM, CAMAC, VME and PXI architecture with various types of sensors (photomultipliers, silicon and germanium detectors, etc.);
- Vacuum technology: design and construction of high vacuum systems (two training INFN courses) [see attachment q, r];
- Mass spectroscopy: design and construction of a system for leak checking by means of a mass spectrometer and a residual gas tracer [ref. 59];
- CAD: 2D AutoCAD and 3D NX-11 design skill [see attachment nn];
- Plants: purification systems for gases and liquid with high degree of cleanliness and radio purity;
- Cryogenic systems [ref. 54, 55];

Computer skills

- Operating systems: good knowledge of WINDOWS and Office;
- Programming languages: C++, HTML, LABVIEW e ROOT;
- Programs: AutoCAD, NX-11, ANSYS, Matlab, Microsoft Project, etc... [see attachment nn];

1. **"The Earth's magnetic field compensation in the Borexino phototubes facility"**, P. Lombardi and PMT working group, INFN/TC-97/35 SIS - Pubblicazioni Frascati;
2. **"Pulse shape discrimination of liquid scintillators"**, A. Goretti, P. Lombardi, G. Ranucci, N.I.M. A 412 (1998) 374-386;
3. **"Status report of the PMT working group"**, P. Lombardi and PMT working group;
4. **"A Large Scale Low Background Liquid Scintillator Detector: the Counting Test Facility at Gran Sasso"**, Borexino collaboration, N.I.M. A 406 (1998) 411-426;
5. **"Measurements of ^{14}C abundance in a low-background liquid scintillator"**, Borexino collaboration, Physics Letters B. 422 (1998) 349-358
6. **"Ultra-low Background measurements in a large volume underground detector"**, Borexino collaboration, Astroparticle Physics 8 (1998) 141-157;
7. **"Light propagation in a large volume liquid scintillator"**, Borexino collaboration, N.I.M. A 440 (2000) 360-371;
8. **"Science and Technology of Borexino: a real time Detector for Low Energy Solar Neutrinos"**, Borexino collaboration, Astroparticle Physics 16 (2002) 205-234;
9. **"Measurements of extremely low radioactivity levels in BOREXINO"**, Borexino collaboration, Astroparticle Physics 18 (2002) 1-25;
10. **"Search for electron decay mode $e \rightarrow \gamma + \nu$ with the prototype of Borexino detector"**, Borexino collaboration, Physics Letter B 525 (2002) 29-40;
11. **"New limits on nucleon decays into invisible channels with the BOREXINO counting test facility"**, Borexino collaboration, Physics Letter B 563 (2003) 23-34;
12. **"Study of neutrino electromagnetic properties with the prototype of the Borexino detector"**, Borexino collaboration, Physics Letter B 563 (2003) 35-47;
13. **"New experimental limits on heavy neutrino mixing in ^8B -decay obtained with the Borexino Counting Test Facility"**, Borexino collaboration, Pis'ma v ZhETF, vol. 78, iss. 5 (2003) pp. 707-712;
14. **"A multiplexed optical-fiber system for the PMT calibration of the Borexino experiment"**, Caccianiga, D. Franco, D. Giugni, P. Lombardi, S. Malvezzi, J. Maniera, G. Manusardi, L. Miramonti, G. Ranucci, O. Smirnov, N.I.M. A 496 (2003) 353-361;
15. **"Progetto preliminare sistema di isolamento pavimentale della sala C – area Borexino"**, P. Lombardi, A. Salvatori, Progetto per la presidenza INFN;
16. **"Precision measurements of timing characteristics of ETL9351 photomultipliers"**, O.Ju. Smirnov, P. Lombardi, G. Ranucci, Instruments and Experimental Techniques, vol. 47 No. 1 (2004), pp 69-79;
17. **"The photomultiplier tube testing facility for the Borexino experiment at LNGS"**, A. Brigatti, A. Ianni, P. Lombardi, G. Ranucci, O.Ju. Smirnov, N.I.M. A 537 (2005) 521-536;
18. **"A sampling board optimized for pulse shape discrimination in liquid scintillator applications"**, G. Ranucci, R. Dossi, P. Inzani, G. Korga, P. Lombardi, E. Meroni, M.E. Monzani, IEEE Transactions on Nuclear Science, vol. 51, No. 4, August 2004;
19. **"New experimental limits on violation of the Pauli exclusion principle obtained with the Borexino Counting Test Facility"**, Borexino collaboration, The European Physical Journal C 37 (2004) 421-431;
20. **"The measurements of 2200 ETL9351 type photomultipliers for the Borexino experiment with the photomultiplier testing facility at LNGS"**, A. Ianni, P. Lombardi, G. Ranucci, O.Ju. Smirnov, N.I.M. A 537 (2005) 683-697;
21. **"Search for electron antineutrino interactions with the Borexino Counting Test Facility at Gran Sasso"**, Borexino collaboration, The European Physical Journal C 47 (2006) 21-30;
22. **"CNO and pep neutrino spectroscopy in Borexino: measurement of the deep underground production of cosmogenic ^{11}C in an organic liquid scintillator"**, Borexino collaboration, Physical Review C 74, 045805 (2006);
23. **"Time and position distributions in large volume spherical scintillation detectors"**, P. Lombardi, G. Ranucci, N.I.M. A 574 (2007) 65-82;
24. **"The Borexino detector: construction and performances"**, P. Lombardi, Astroparticle, Particle and Space Physics..., Proc. Of 10th Conference Villa Olmo (2008) 214-223;
25. **"The Borexino detector: photomultipliers system"**, P. Lombardi, Journal of Physics: Conference Series 136 (2008) 042011;
26. **"First real time detection of ^7Be solar neutrinos by Borexino"**, Borexino Collaboration, Physics Letters B 658 (2008) 101-108;
27. **"Direct measurement of the ^7Be solar neutrino flux with 192 days of Borexino Data"**, Borexino Collaboration, Physical Review Letters 101, 091302 (2008);
28. **"Search for solar axions emitted in the M1-transition of $^7\text{Li}^*$ with Borexino"**, Borexino Collaboration, The European Physical Journal C 54 (2008) 61-72;
29. **"Pulse-shape discrimination with the Counting Test Facility"**, Borexino Coll., N.I.M. A 584 (2008) 98-113;
30. **"Study of phenylxylethane (PXE) as scintillator for low energy neutrino experiments"**, Borexino Collaboration, N.I.M. A 585 (2008) 48-60;
31. **"The Borexino detector at the Laboratori Nazionali del Gran Sasso"**, Borexino Collaboration, N.I.M. A 600 (2009) 568-593;
32. **"The liquid handling systems for the Borexino solar neutrino detector"**, Borexino Collaboration, N.I.M. A 609 (2009) 58-78;
33. **"Measurement of the solar 8B neutrino rate with a liquid scintillator target and 3 MeV energy threshold in the Borexino detector"**, Borexino Collaboration, Physical Review D 82 (2010) 033006;

34. "Observation of geo-neutrinos", Borexino Collaboration, *Physics Letters B* 687 (2010) 299-304;
35. "New experimental limits on the Pauli-forbidden transitions in ^{12}C nuclei obtained with 485 days Borexino data", Borexino Collaboration, *Physical Review C* 81 (2010) 034317;
36. "Precision Measurement of the ^7Be Solar Neutrino Interaction Rate in Borexino", Borexino Collaboration, *Physical Review Letters* 107 (2011) 141302;
37. **"The scintillator solvent procurement for the Borexino solar neutrino detector"**, M.G. Giammarchi, P.L. Gandolfo, P. Lombardi, L. Miramonti, F. Ortica, S. Parmeggiano, A. Romani, C. Salvo, P. Tronci, N.I.M. A 648 (2011) 100-108;
38. "Muon and cosmogenic neutron detection in Borexino", Borexino Collaboration, *Journal of instrumentation* 6 (2011) P05005;
39. "Search for modulations of the solar $\text{Be}7$ flux in the next-generation neutrino observatory LENA", M. Wurm et al., *Physical Review D* 83 (2011) 032010;
40. "Solar neutrino results from Borexino and main future perspectives", M. Pallavicini et al., N.I.M. A 630 (2011) 210-213;
41. "Study of solar and other unknown anti-neutrino fluxes with Borexino at LNGS", Borexino Collaboration, *Physics Letters B* 696 (2010) 191-196;
42. "High precision ^7Be solar neutrinos measurement and day night effect obtained with Borexino", Borexino Collaboration, N.I.M. A 692 (2012) 258-261;
43. "Measurement of CNGS muon neutrino speed with Borexino", Borexino Collaboration, *Physics Letters B* 716 (2012) 401-405;
44. "Borexino calibrations: hardware, methods, and results", Borexino Collaboration, *Journal of instrumentation* 7 (2012) P10018;
45. "Search for solar axions produced in the $p(d,3\text{He})\text{A}$ reaction with Borexino detector", Borexino Collaboration, *Physical Review D* 85 (2012) 092003;
46. "Cosmic-muon flux and annual modulation in Borexino at 3800 m water-equivalent depth", Borexino Collaboration, *Journal of Cosmology and Astroparticle Physics* 5 (2012) 15;
47. "First Evidence of pep Solar Neutrinos by Direct Detection in Borexino", Borexino Collaboration, *Physical Review Letters* 108 (2012) 051302;
48. "Absence of a day-night asymmetry in the ^7Be solar neutrino rate in Borexino", Borexino Collaboration, *Physics Letters B* 707 (2012) 22-26;
49. "The next-generation liquid-scintillator neutrino observatory LENA", LENA collaboration, *Astroparticle Physics* 35 (2012) 685-732;
50. "Cosmogenic Backgrounds in Borexino at 3800 m water-equivalent depth", Borexino Collaboration, *Journal of Cosmology and Astroparticle Physics* 8 (2013) 49;
51. "SOX: Short distance neutrino Oscillation with Borexino", Borexino Collaboration, *Journal of High Energy Physics* 8 (2013) 38;
52. **"Decay time and pulse shape discrimination of liquid scintillators based on novel solvents"**, P. Lombardi, F. Ortica, G. Ranucci, A. Romani, N.I.M. A 701 (2013) 133-144;
53. "Lifetime measurements of ^{214}Po and ^{212}Po with the CTF liquid scintillator detector at LNGS", Borexino Collaboration, *The European Physical Journal A* (2013) 49-92;
54. "DarkSide search for dark matter", DarkSide Collaboration, *Journal of instrumentation* 8 (2013) C11021;
55. "Light yield in DarkSide-10: A prototype two-phase argon TPC for dark matter searches", DarkSide collaboration, *Astroparticle Physics* 49 (2013) 44-51;
56. "New limits on heavy sterile neutrino mixing in 8B decay obtained with the Borexino detector", Borexino Collaboration, *Physical Review D* 88 (2013) 072010;
57. "Measurement of geo-neutrinos from 1353 days of Borexino", Borexino Collaboration, *Physics Letters B* 722 (2013) 295-300;
58. **"Borexino: Low background techniques adopted during the installation"**, P. Lombardi, A. Goretti, *Internal Journal of Modern Physics A* 29 (2014) 1442006;
59. **"The optical system in Borexino"**, P. Lombardi, *Internal Journal of Modern Physics A* 29 (2014) 1442003;
60. "Final results of Borexino Phase-I on low-energy solar neutrino spectroscopy", Borexino Collaboration, *Physical Review D* 89 (2014) 112007;
61. **"Neutrinos from the primary proton-proton fusion process in the Sun"**, Borexino Collaboration, *Nature* 512 (2014) 383;
62. "Spectroscopy of Geoneutrinos from 2056 days of Borexino data" *Physical Review D* 92, 031101(R) (2015);
63. **"First results from the DarkSide-50 dark matter experiment at Laboratori Nazionali del Gran Sasso"**, *Phys. Lett. B* (2015) Volume 743, 456-466;
64. "The DarkSide Multiton Detector for the Direct Dark Matter Search", *Adv. High Energy Phys.* (2015);
65. "Test of Electric Charge Conservation with Borexino", *PHYS REV LETT* (2015) Volume 115 Issue 23
66. "The electronics and data acquisition system for the DarkSide-50 veto detectors", *J INSTRUM* (2016) Volume 11
67. "Results from the first use of low radioactivity argon in a dark matter search", *PHYS REV D* (2016) Volume 93 Issue 8
68. "Neutrino physics with JUNO", *J PHYS G NUCL PARTIC* (2016) Volume 43 Issue 3
69. "The veto system of the DarkSide-50 experiment", *J INSTRUM* (2016) Volume 11
70. "CALIS - A CALibration Insertion System for the DarkSide-50 dark matter search experiment", *J INSTRUM* (2017) Volume 12
71. "Limiting neutrino magnetic moments with Borexino Phase-II solar neutrino data", *PHYS REV D* (2017) Volume 96 Issue 9

72. "Seasonal modulation of the Be-7 solar neutrino rate in Borexino", *ASTROPART PHYS* (2017) Volume 92
73. "A Search for Low-energy Neutrinos Correlated with Gravitational Wave Events GW 150914, GW 151226, and GW 170104 with the Borexino Detector", *The Astrophysical Journal (ApJ)*, 850-21, Nov. 2017
74. "Borexino's search for low-energy neutrino and antineutrino signals correlated with gamma-ray bursts", *ASTROPART PHYS* (2017) Volume 86
75. "The Monte Carlo simulation of the Borexino detector", *ASTROPART PHYS* (2018) Volume 97

Privacy

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Date

03-05-2020

In witness thereof,



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