

Curriculum Vitae
Tartaglia Roberto

PERSONAL INFORMATION

Family Name, First name:
Nationality:
Date of Birth:
Place of Birth:
Private Address:

WORK

Title: Senior Researcher
Address: LNGS - Laboratori Nazionali del Gran Sasso, AQ, Italy

Tel.:

Email:
SkypeName:

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

2021 - present LNGS- NOA (Nuova Officina Assergi) Coordinator. The NOA infrastructure is devoted to guarantee the correct interface role between LNGS and DarkSide-20k Collaboration.
2019 - present DarkSide Collaboration - ARIA Project and Financial Manager. INFN RUP for Regione Autonoma della Sardegna (RAS).

2017 - 2019	DarkSide Collaboration - ARIA Project Technical Coordinator. The ARIA Project consists of the realization of a unique cryogenic 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

2021 - present	LNGS- NOA (Nuova Officina Assergi) Responsible.
2019 – present	DarkSide, Project & Financial Manager ARIA Project. INFN RUP for RAS
2017 – 2019	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 – ESREL04 - 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), considerable experience and know-how 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, up to 2016, as Responsible of the Prevention and Protection Service; particular care to the safety improvement for the Experiments @ LNGS and to the definition of the requirements, rules and procedures to be respected in the safety fields,
- * 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. The foreseen Risk Assessment, Safety Report, the 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 for the Detector has been 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 decommissioning.
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.
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, started in 2016, has been completed in June 2017: the next step will be the system installation in the four labs.
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 guaranteed to the coordination of all the activities, to the interaction with the local Authorities and to the 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, to the "dynamic" definition of controlled access areas, to the organization of site logistics.
- * Radio-Protection:
The LNGS Organization foresaw 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 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)

2021 - NOA
 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 were attending the safety briefing courses every year.

PERSONAL SKILLS AND COMPETENCES

Mother Tongue Italian

Other Languages English - fluent

English	Understanding		Speaking		Writing
	Listening	Reading	Spoken Interaction	Spoken Production	
	excellent	excellent	excellent	excellent	excellent
	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 50 students have been directly tutored 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, 3 student as junior engineer at UniRoma1. The degree has been scheduled in Autumn 2022.

A total number of about 60 students have been directly tutored 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:

2022 -	Di Ludovico Antonio	INFN fellowship for Senior graduates
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

Lama dei Peligni (CH), Italy
Wednesday, May 25, 2022

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, "Emergency management & emergency plan of Gran Sasso National Laboratories: underground laboratories and motorway tunnels", presso SAFE 2013 - Roma*

Lama dei Peligni (CH), Italy
Wednesday, May 25, 2022

Roberto Tartaglia

Gemma Testera

I graduated in Physics in the year 1986 at the University of Genova. In 1988 I got a INFN scholarship for young graduated and then I obtained the phd in Physics in 1991 in the University of Genoa in collaboration with the PSI Institute in Zurich. I'm employed with a permanent position as INFN (Istituto Nazionale di Fisica Nucleare) researcher since the year 1991 and then as First Researcher (2003-2021) and Research Director (2021 to present).

In 2012 I obtained the l'Abilitazione Scientifica Nazionale for a profile of University Full Professor in the sector 02/A1 (Experimental Physics about fundamental interactions).

My scientific activity, since the time of the phd, is about experimental astroparticle physics and fundamental interactions in the framework of INFN projects.

The main scientific topics are:

1) verification of fundamental symmetries of the physics laws (CPT and WEP) using low energy antimatter and antihydrogen. This is an experimental program taking place at CERN including trapping, manipulating charged particles of matter and antimatter in electromagnetic traps to form antihydrogen with very low temperature (kelvin or sub-kelvin) and then perform precise spectroscopy and free-fall experiments in the Earth's gravitational field. I worked on this science since the time of the graduation until the year 2019 covering several leading roles as INFN National responsible (in the projects ATHENA and AEgIS), Physics Coordinator, (AEgIS), International spokes-person (AEgIS) and deputy spokes-person (AEgIS). I was leading the experiment ATHENA when in the year 2002 we produced for the first time cold antihydrogen by recombination of trapped positrons and antiprotons.

I propose and got approval from the SPSC Cern committee and funding from INFN of a second generation experiment (AEgIS) aiming at producing a cold beam of antihydrogen for gravity measurements. I was leading the design, installation and run of the apparatus at CERN. With the data collected in 2018 the first pulsed production of antihydrogen in a pulsed way has been demonstrated.

2) Solar neutrino physics and geoneutrinos in Borexino.

This activity is about the measurement of the flux of low energy (MeV or sub-MeV) solar neutrinos and Earth's antineutrinos with a low background liquid scintillator detector (Borexino) located underground (Lab. Naz. G. Sasso). I started working on this subject after the end of the phd and the activity is currently in progress.

I was leading several working groups during the preparation and construction of the experiment and, particularly, I covered the role of Physics Coordinator and Responsible of the data Analysis in the period

2010-2018 during which we measured all the fluxes of the pp solar neutrinos and we established and validated the analysis tools later used for the first measurement of the CNO solar neutrinos.

I performed experimental activity about the liquid scintillator, photomultiplier calibrations, design and test of the front end electronics during the time of the preparation of the experiment and then simulation and data analysis during the data taking (started in 2007). I gained experience on the project and construction of low background detectors for rare events.

I was member since many years of the Institutional Board of Borexino. I was member of the Steering comm. (who is managing the experimental decisions) of Borexino for about 10 years.

3) Direct detection of dark matter in DarkSide

Since the year 2012 I'm also involved in an experiments aiming at direct detection of dark matter particles (in form of WIMPs) in G. Sasso based on a two phase liquid Argon Time Projection Chamber (DarkSide50).

After the successful run of the prototype the collaboration enlarged including now more than 350 scientist and we are building a large scale detector (20 ton of liquid Argon active volume) with high sensitivity and low background.

I was the responsible (L1 manager) of the project, construction and installation of that part of the detector called Veto that must identify with high efficiency background neutron events mimic dark matter signals.

This activity strongly benefits from several experiences gained in Borexino.

Starting from October 2020 I'm the INFN National Responsible of DarkSide and the chair of the DarkSide Financial Board.

I'm member of all the management committees of the experiment (Institutional Board, Technical Board, Executive board and Resource board)

4) I joined the Euclid consortium in 2018. This is an ESA mission aiming at big 3D survey of galaxies with two instruments on a satellite getting spectroscopy and images. Cosmology, Dark matter, dark energy and validity of general relativity are the main scientific items of the project.

With my group in Genoa I'm involved in the working groups working on the Galaxy Clustering, in the spectroscopic simulation of the image, the test of the software of the instrument providing the spectroscopic image and in its self calibration.

During my activity I was always working both on hardware items and on software (simulation or analysis according to the different phases of the life of the experiments) and I gained experience on several fields: electronics (digital and radio frequency), ultra high vacuum, cryogenics, large volume liquid organic scintillators, plastic scintillators, Photomultipliers, Micro Channel Plates and Silicon Photomultipliers, operation of Silicon Photomultipliers in cryogenic environments, operation of superconducting magnets, traps for charged particles, non destructive trapped particle detection, cooling of trapped particles, non neutral cold plasma physics, Rydberg atoms, Monte Carlo codes based on Geant3 and Geant4, development of analysis and simulation code in C and C++, development of codes for tracking charged particles in electric and magnetic fields, advanced LabView programming for DAQ, data analysis in low background underground experiments, fit of the solar neutrino spectra with Monte Carlo based response functions, search for rare signals and experimental problems related to low background underground physics, neutron tagging and Argon scintillation physics.

I always worked in the context of medium-large international collaborations on experimental apparatus mounted in international Laboratory (CERN, LNGS). I developed complementary small scale experimental apparatus related to these main projects in my laboratory in the INFN Institute in Genova leading to specific publications (examples are measurements of liquid scintillator and quencher properties for Borexino, development of electronics both for Athena, AEGIS and Borexino, resonant circuit and low noise amplifiers working at 4 Kelvin for AEGIS, many measurements with electrons and protons trapped in a test traps within a superconducting magnet for ATHENA and AEGIS, setup for test of Silicon Photomultipliers in cryogenic environment for DarkSide).

I was tutor of more than 10 graduate student and 10 phd thesis.

I'm writer and editor of several of the papers signed by the entire collaborations.

Among the main achieved physics results there are the first and most precise measurements of the flux of the ^7Be solar neutrinos with Borexino, the measurement of the ^8B solar neutrinos with low energy threshold, the first detection of pep neutrinos and the best limit on the CNO neutrinos, the evidence of geoneutrinos with Borexino, the first direct measurement of the pp neutrinos, many limits on rare processes obtained with Borexino and the simultaneous precision measurement of all the fluxes of neutrinos of the pp chain. Particular relevant are the latest results of Borexino about the detection of CNO neutrinos from the Sun. In the context of the antimatter activity relevant results are the first production and detection of cold antihydrogen atoms in ATHENA, the dependence on the antihydrogen production on the temperature of the plasma during the recombination in ATHENA, the first excitation of the $n=3$ level of positronium in AEGIS, competitive limits on direct dark matter with a argon based detectors with DarkSide. Finally there is the first production of antihydrogen in pulsed mode with AEGIS.

In the Dark matter field there are the limits on dark matter base obtained with a liquid argon detector, the results with the detector filled with Argon depleted from its radioactive isotope that established the feasibility of a multi ton argon based dark matter detector, currently under construction.

In 2003 I got the award "Premio Regionale Ligure per la Ricerca Scientifica" thanks to the results about the first formation of cold antihydrogen atoms in ATHENA.

From 1997 to 2003 I was member of the INFN scientific comm. devoted to review and approve the INFN projects about Astroparticle Physics.

I'm currently working as referee for several Journals (NIM, Phys. Lett.B, Phys. Lett. A, EPJA, Annalen der Physik, British Journal of Applied Science and Technology, JINST, Physica Scripta) and for international funding agencies (ANR e Swiss National Science Foundation).

I also work as referee for INFN experiments. Particularly, before 2018, I was referee of Euclid.

I served as external referee for several phd thesis of Italian and not Italian Universities.

I was member of the scientific comm. of the ANR for two years (2020 and 2021) for the selection of scientific proposals in the field of Astroparticle Physics

I was spokesperson of the AEGIS experiment from 2007 to 2010 and I was driving completely the process of the formation of the scientific collaboration, writing of the proposal and approval of the experiment. I was the deputy spokesperson of AEGIS from 2010 to 2019. I was the INFN national responsible of ATHENA (2001-2008) and the National INFN responsible of AEGIS (2010 to 2019).

Additionally I covered the role of local responsible for Borexino for 4 years. I served the same role for ATHENA during the period from 1997 to 2008.

I'm currently the INFN National Responsible of the DarkSide experiment.

During the period 2014-2016 I was one of the responsible of a National Working Group On Fundamental Physics in the INFN "What Next" project which was an activity aiming to discuss and promote new ideas and projects.

I'm member of the "Accademia Ligure di Scienze e Lettere" in Genova and of the "Convivio del Tigullio": both are non academic organization devoted to divulgation of science and culture.

I'm author of more than 330 publications on peer referred journals.

CURRICULUM VITAE

Eugenio Paoloni

Profilo professionale

Professore Associato presso il Dipartimento di Fisica dell'Università di Pisa.
Responsabile del corso di Laboratorio di Interazioni Fondamentali del corso di laurea magistrale in Interazioni Fondamentali dell'Università di Pisa.
Incarico di ricerca presso la sezione INFN di Pisa.
Responsabile del gruppo di ricerca e sviluppo della foto-elettronica dell'esperimento Darkside.

Esperienze lavorative recenti

Ricercatore in formazione presso l'Università di Pisa 2006 - 2009
Ricercatore presso l'Università di Pisa 2009 - 2017
Responsabile locale del progetto speciale INFN NTA-SuperB 2006-2014
Responsabile della costruzione del doppietto di foccheggio finale dell'esperimento SuperB 2006-2014
Coordinatore del gruppo Machine-Detector Interface dell'esperimento SuperB 2009-2014
Responsabile dello sviluppo del codice di ricostruzione delle tracce cariche dell'esperimento Belle-2 2015-2020
Responsabile locale dell'esperimento INFN di gruppo 2 Darkside 2016-
Responsabile dello sviluppo della foto-elettronica di Darkside 2020-2021

Istruzione

Maturità scientifica.
Laurea in Fisica presso l'Università di Pisa.
Dottorato di Ricerca in Fisica presso l'Università di Pisa.

Lingue

Italiano lingua madre.
Inglese parlato e scritto.
Francese parlato e scritto

L'Aquila, 19 gennaio 2023

Eugenio Paoloni
