

**Curriculum Vitae  
Tartaglia Roberto**

**PERSONAL INFORMATION**

Family Name, First name: Tartaglia Roberto  
Nationality: Italian  
Date of Birth: 25 July 1960  
Place of Birth: Lama dei Peligni (Chieti) - Italy  
Private Address: Via Frentana, 56 - 66010 Lama dei Peligni (Chieti)

**PERSONAL DATA**

Italian citizen, married, one daughter.

**WORK**

Title: Senior Researcher  
Address: LNGS - Laboratori Nazionali del Gran Sasso, AQ, Italy  
Via G. Acitelli, 22 - 67100 Assergi (AQ)  
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+ 39 - 329 / 8312369  
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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 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**

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 – 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).

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.
- \* 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**

2015 - present UNIMARCONI– Faculty of Applied Science and technology –  
 Department of Civil Engineering –  
 Subject: “Risk and Safety in worksite and in the infrastructures”  
 Materia: “Rischio e sicurezza nei cantieri e nelle infrastrutture”

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".  
 Materia: "Sicurezza nella progettazione, costruzione e avviamento degli impianti di processo".

2008 - 2014 UNIMARCONI– Faculty of Engineer – Department of Industrial Engineering –  
 Subject: “Risk and Safety in the high-risk plants”  
 Materia: “Rischio e sicurezza negli impianti ad alto rischio”

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

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

2016 Papisca Nicola, Employee, Roma, Italy - Engineer  
2015 Perlangeli Luisa, Employee, Roma, Italy - Engineer  
2015 - Mete Maurizio, HSE Dept. in Modena, Italy - Engineer, EHS Division  
2014 - Coglitore Laura, Employee, Milano, Italy - Engineer  
2014 - Tarola Debora, Employee, L'Aquila, Italy - Engineer  
2013 - Esposito Riccardo, Student, Rome, Italy - Junior Engineer  
2013 - Luciani Italo, Student, Rome, Italy - Junior Engineer  
2013 - Mastrantonio Riccardo, Employee, L'Aquila, Italy - Junior Doctor as HSE Expert  
2013 - Nusca Fiorella, Employee, L'Aquila, Italy - Engineer  
2012 - Farina Giordana, Employee, Rome, Italy - Engineer  
2012 - Ferone Silvia, Employee, Rome, Italy - Engineer  
2012 - Di Gennario Eutizio, Fire Brigade Officer, L'Aquila, Italy - Engineer  
2012 - Sarnicola Giovanni, Employee, Rome, Italy - Engineer  
2012 - Trisolino Daniele, Employee, Rome, Italy - Engineer  
2011 - Brunori Giuseppe, Head of Safety Service, Mantova, Italy - Engineer  
2010 - Giovannone Enzo Paolo, Fire Brigade Officer, Avezzano, Italy - Engineer  
2008 - D'Angelo Paolo, Fire Brigade Officer, Sulmona, Italy - Junior Engineer  
2008 - Di Gennaro Eutizio, Fire Brigade Officer, L'Aquila, Italy - Junior Engineer  
2007 - Bonanni Fabio, Systems Engineer @ UNICREDIT, L'Aquila - Junior IT Doctor  
2007 - Di Vincenzo Luca, System Engineer, Malaga, Spain - Junior IT Doctor  
2005 - Vizzani Alessandra, HSE Dept. in L'Aquila County, L'Aquila, Italy - Master in Engineer  
2005 - Tobia Marco, Researcher @ LNGS, Assergi (AQ), Italy - Junior Engineer (2nd degree)  
2005 - Brunori Giuseppe, Head of Safety Service, Mantova, Italy - Junior Engineer  
2004 - Battistelli Sara, Process Engineer, Teramo, Italy - Junior Engineer  
2003 - Nisi Stefano, Technician @ LNGS, Assergi (AQ), Italy - Engineer  
2003 - Di Santo Marco, Technical Manager @ Tec. Imp., Rome - Italy - Engineer  
2003 - Di Lillo Andrea, Manager @ ENI - Venezia, Italy - Engineer  
2003 - Di Marco Lucia, Project Manager @ TERNA, Rome, Italy - Junior Engineer  
2002 - Tobia Marco, Researcher @ LNGS, Assergi (AQ), Italy - Engineer  
2001 - La Rovere Stefano, Project manager @ NIER, Bologna, Italy - Engineer  
2000 - Santoni Riccardo, Manager @ IVECO, Rio de Janeiro, Brazil - Engineer  
2000 - Ianni Andrea, Borexino Collaboration, Princeton University - Engineer

Currently, 1 students as engineer. The degree has been scheduled by the end of 2018.

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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 - present	Perruzza Roberto -	INFN fellowship for Senior graduates
2016 - present	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  
Saturday, July 14, 2018

Roberto Tartaglia




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### Publications (on "safety")

- 01** *G.R. Stevenson, R. Tartaglia*  
Dose to UA2 Detectors due to  $p\bar{p}$  collisions and primary beam losses.  
CERN/TIS-RP/06  
12 May 1989
- 02** *H. Schonbacher, R. Tartaglia, M. Tavlet*  
Ageing of organic materials in ionizing radiation environments of high energy particle accelerators. -  
Section 3 -  
Compilation of radiation damage test data  
I.A.E.A. '89  
17 - 20 July 1989 - Takasaki (Japan)
- 03** *G.R. Stevenson, R. Tartaglia*  
Dose to UA2 Detectors due to  $p\bar{p}$  collisions and primary beam losses.  
CERN 89/10 -  
ECFA 89-124 - Proceedings Vol.1 - pp. 149-151  
24 November 1989
- 04** *C.W. Nuttall, R. Tartaglia*  
Loss Prevention in an International High Energy Physics Laboratory.  
CERN/TIS-CFM/90-06  
02 May 1990
- 05** *C.W. Nuttall, R. Tartaglia*  
The Application of Loss Prevention Techniques in an International High Energy Physics Laboratory.  
I.A.I.A. '90 - Proceedings - pp. 172 - 174  
27 - 30 June 1990 - Losanna (Switzerland)
- 06** *C.W. Nuttall, R. Tartaglia*  
A Loss Prevention Analysis of the DELPHI Experiment by "Dow's Fire and Explosion Index" Method.  
TIS-CFM/TM/90-07  
6 July 1990
- 07** *A. Fassò, A. Ferrari, G.R. Stevenson, R. Tartaglia*  
Monte-Carlo Simulation of Synchrotron Radiation Transport and Dose Calculation to the Components  
of a High-Energy Accelerator.  
CERN/TIS - RP/90 - 11/CF
- 08** *A. Fassò, A. Ferrari, G.R. Stevenson, R. Tartaglia*  
Monte-Carlo Simulation of Synchrotron Radiation Transport and Dose Calculation to the Components  
of a High-Energy Accelerator.  
Progress in Nuclear Energy, Vol. 24 - pp. 417 - 428  
25-28 September 1990 - Budapest (Hungary)
- 09** *L. Cadonati, M. Laubenstein, G. Manuzio, A. Preda, R. Tartaglia*  
Memo on the Radon Cleaning Methods for Gases.  
INFN/TC-95/10  
Febbraio 1995



- 10** *G. Ranucci, R. Tartaglia*  
Un nuovo rivelatore ai Laboratori del Gran Sasso: il Counting Test Facility dell'Esperimento BOREXINO.  
Il Nuovo Saggiatore – Nuova Serie Anno 11 n. 5/6 (1995) – pagg. 62-77
- 11** *M. Rogante, R. Tartaglia*  
Il progetto "BOREXINO" per la misurazione dei neutrini solari.  
Lamiera – Aprile 1999 – pagg. 119-128
- 12** *R. Tartaglia*  
L'organizzazione della Sicurezza e la Gestione delle Emergenze @ Laboratori Nazionali del Gran Sasso.  
1° Convegno Nazionale INFN "Sicurezza sul Lavoro"  
Napoli – Ottobre 1999
- 13** *R. Tartaglia*  
Safety Organisation and Emergency Plans @ Gran Sasso National Laboratories  
Proc. Hep Safety Forum, Hambourg - October 1999 – App. N. 10
- 14** *A. Giampaoli, R. Tartaglia*  
Guida alla Sicurezza per gli esperimenti nei Laboratori Nazionali del Gran Sasso.  
Febbraio 2000
- 15** *R. Tartaglia*  
BOREXINO: the technical description  
Nuclear Instruments & Methods in Physics Research –  
Section A – 461 (2001) pp. 327 - 328
- 16** *A. Caputo, M. Pelagagge, R. Tartaglia*  
Safety management in a Hazardous Experimental Environment: The Borexino case.  
Process Safety Progress - vol. 21, No. 1 - pp. 55 - 66 - March 2002
- 17** *A. Caputo, M. Pelagagge, R. Tartaglia*  
Volatile Organic Compound Control in an Underground Experimental Facility: Technical and Safety Issues  
Process Safety Progress - vol. 23, No. 1 - pp. 37 - 46 - March 2004
- 18** *A. Caputo, M. Palumbo, R. Tartaglia*  
Fault Tree Analysis for Risk Assessment in the Borexino Experiment  
Process Safety Progress - vol. 23, No. 2 - pp. 121 - 131 - June 2004
- 19** *A. Giampaoli, R. Tartaglia, M. Tobia*  
La Gestione delle Emergenze nei Laboratori Nazionali del Gran Sasso  
CNR – Convegno Nazionale D. Lgs. 626/94 – Proc. – pp. 79 – 93 – Ottobre 2004
- 20** *F. Garzia, P. Rossi, R. Tartaglia*  
Analisi Elettromagnetica Preliminare per la Realizzazione di una Rete Wireless all'interno dei Laboratori sotterranei del Gran Sasso dell'Istituto Nazionale di Fisica Nucleare.  
CNR – Convegno Nazionale D. Lgs. 626/94 – Proc. – pp. 273 – 282 – Ottobre 2004
- 21** *A. Giampaoli, R. Tartaglia, M. Tobia*  
The Nuclear Physics Gran Sasso National Laboratory in the Gran Sasso Highway Tunnel: the Safety Organisation and the Qualitative-Quantitative methods for Risk Evaluation.  
PSAM 7 – ESREL 04 – Probabilistic Assessment And Safety Management  
proc. June 14 – 18, 2004, Berlin, Germany, Volume 6 - pp. 3453 - 3460

- 22** *D. Barone, A. Giampaoli, R. Tartaglia, M. Tobia, G. Zappellini*  
La Gestione della Sicurezza presso i Laboratori Nazionali del Gran Sasso dell'I.N.F.N..  
CNR – Convegno Nazionale– Proc. – pp. 183 – 194 – Settembre 2005
- 23** *A. Giampaoli, R. Tartaglia, M. Tobia*  
D. Lgs. 626/94 e D. Lgs. 230/95 – La Formazione presso i Laboratori Nazionali del Gran Sasso dell'I.N.F.N..  
CNR – Convegno Nazionale D. Lgs. 626/94 – Proc. – pp. 183 – 190 – Maggio 2007
- 24** *M. Tobia, R. Perruzza, R. Tartaglia, F. Gabriele*  
Safety Risk Analysis dell'apparato XENON1T nei Laboratori Nazionali del Gran Sasso: Cost-Benefit Analysis per la mitigazione dei rischi da Rapid Phase Transition e criogenia.  
VGR (2012) – ID150
- 25** *G. Bonfini, F. Gabriele, M. Tobia, R. Tartaglia, A. Giampaoli*  
Nitrogen gas spillage in a confined space located in the Gran Sasso Underground Nuclear Physics Laboratory: an outstanding oxygen deficiency hazard case study.  
WIT Press - Safety and Security Engineering V (2013) – pp. 145 - 153
- 26** *A. Giampaoli, R. Perruzza, M. Tobia, R. Tartaglia*  
Emergency management and an emergency plan for the Gran Sasso National Laboratories: underground laboratories and motorway tunnels.  
WIT Press - SAFE2013 - Risk Analysis IX (2014) – pp. 417 - 427
- 27** *A. Giampaoli, R. Perruzza, G. Farina, M. Tobia, R. Tartaglia*  
Fire Risk Analysis with a performance-based Fire Safety Engineering approach and FDS models for underground facilities in Gran Sasso National Laboratories.  
WIT Press - SAFE2013 - Risk Analysis IX (2014) – pp. 193 - 204
- 28** *R. Perruzza, F. Nusca, M. Tobia, R. Tartaglia*  
FDS+Evac models and Cryogenic & Oxygen deficiency emergency management for underground facilities in Gran Sasso National Laboratories  
WIT Press - SAFE2015 - Safety and Security Engineering VI (2015) – pp. 311 - 322
- 29** *F. Garzia, A. Giampaoli, E.P. Giovannone, M. Guarascio, 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 - International Engineering Journal*
- 30** *F. Borghini, F. Garzia, A. Giampaoli, M. Lombardi, M. Mete, R. Perruzza, R. Tartaglia*  
The human factor analysis inside a peculiar job environment as the Gran Sasso mountain underground laboratory of Italian National Institute for Nuclear Physics  
*Elsevier - Journal Safety Science- submitted for publication*

Assergi (AQ), Italy  
Saturday, July 14, 2018

Roberto Tartaglia



# Curriculum Vitae

Roma

2 dicembre 2018

## Part I – General Information

Part I.A

Full Name	Mara Lombardi
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Part I.B – Current Job Position

Job Position	Assistant Professor
S.S.D.	ING-IND/28 (Ingegneria e sicurezza degli scavi)
Area	08/A2
Institution	Università degli Studi di Roma “La Sapienza”
Faculty	Ingegneria Civile e Industriale (ICI)
Department	Department of Chemical Engineering Materials Environment (DICMA)

## Part II – Education

Type	Year	Institution	Notes (Degree, Experience,...)
University graduation	2004	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Title of final dissertation: Analisi di affidabilità delle condizioni di sicurezza e tenuta di cavità saline per l'estrazione e lo stoccaggio
PhD	2008	Ingegneria dei Materiali e delle Materie prime (XXI ciclo) Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Title of final dissertation: Modelli di rischio e gestione della sicurezza nelle gallerie stradali e ferroviarie
Fellowship	2010	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Quantitative Risk Analysis - Project “Ambiente, Salute e Sicurezza nelle attività artigiane che insistono sul territorio di Civitavecchia”
Licensure	2008	Ordine Ingegneri Provincia di Roma	Registered member at the Engineering Professional Order
Licensure	2010	Ministero dell'Interno, Dipartimento Dei Vigili Del Fuoco, Del Soccorso Pubblico E Della Difesa Civile	Registered member at the Fire Designers Register
Licensure	2014	Ordine Ingegneri Provincia di Roma	Registered member at the Engineering Professional Committee “Occupational Safety”

### Part III – Appointments

#### IIIA – Academic Appointments

Start	End	Institution	Position
2010	-	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Ricercatore a tempo indeterminato SSD ING-IND/28
2011	2012	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Member of Doctoral Board “Ingegneria dei Materiali e delle Materie Prime (XXVII ciclo)”
2012	2013	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Member of Doctoral Board “Ingegneria dei Materiali delle Tecnologie e dei Sistemi Industriali Complessi (XXVIII ciclo)”
2013	2014	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Member of Doctoral Board “Ingegneria Elettrica, dei Materiali delle Tecnologie e delle nanotecnologie (XXIX ciclo)”
2017	2018	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Member of Doctoral Board “Ingegneria Elettrica, dei Materiali delle Tecnologie e delle nanotecnologie (XXXIII ciclo)”
2018	2019	Dipartimento ICMA, Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Member of Doctoral Board “Ingegneria Elettrica, dei Materiali delle Tecnologie e delle nanotecnologie (XXXIV ciclo)”
2013	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma – Ordine degli Ingegneri della Provincia di Roma	Expert Member of Commission “Engineering Professional Order”
2015	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Responsible for Academic Mobility (RAM) for Safety and Civil Protection Engineering Master Degree
2015	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Scientific Coordinator of Specialization Courses in Occupational Safety
2016	2017	Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca - ANVUR	Referee VQR 2011-2014
2016	2017	Dipartimento ICMA - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Research Grant Tutor “Analisi di rischio dell'incidentalità stradale con metodi di analisi statistica per il trattamento dei dati”
2017	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Chair of the Safety and Civil Protection Engineering Program
2017	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di	Scientific Board Member Facoltà di Ingegneria Civile e Industriale

		Roma	Sapienza (ICI) – Corpo Nazionale dei Vigili del Fuoco (CNVvF)
2017	-	Dipartimento ICMA - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma e Dipartimento Innovazioni Tecnologiche INAIL	Scientific Coordinator Research Committee “Fire Safety Engineering according to Prevention Fire Code”
2018	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Scientific Board Member of Master Ingegneria delle Infrastrutture e dei Sistemi Ferroviari

### IIIB – Other Appointments

Start	End	Institution	Position
2003	2004	Ministero delle Infrastrutture e Ministero dell’Interno	Member of Sapienza Working Group « Risk Analysis for Rail Tunnel D. M. 28.10.2005)
2004	2005	ANAS	Member of Sapienza Working Group « Safety Design for ANAS Road Tunnels »
2004	2007	PIARC – World Road Association	Member of Sapienza Working Group (WG2) TC C.3.3 PIARC « Italian risk analysis for road tunnels »
2006	2007	Consorzio FASTIGI	Member of Working Group « Risk Analysis Rail AV/AC Bo-Fi »
2008	2009	Dipartimento ICMA - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Coordinated and Continuous Collaboration (co.co.co) “Methods for quantifying and representing territorial performance indicators for industrial plants.”
2008	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Handling Exceptions in Structural Engineering, 13-14 novembre 2008
2009	2009	Dipartimento ICMA - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Coordinated and Continuous Collaboration (co.co.co) “Fire design criteria for school buildings”
2012	-	Facoltà di Medicina e Psicologia, Sapienza – Sapienza Università di Roma	Speaker I Conference “Sicurezza del lavoro, benessere organizzativo e costi sociali, 21 marzo 2012” – “Approccio integrato alla sicurezza del lavoro: analisi di affidabilità, di ergonomia e di rischio delle procedure di lavoro.”
2013	-	Wessex Institute of Technology (WIT)	Member of International Scientific Advisory Committee “5th International Conference on Safety and Security Engineering – SAFE 2013”
2013	-	Wessex Institute of Technology (WIT)	Invited speaker 5th International Conference on Safety and Security

			Engineering, Rome (September 17 - 19 2013) "The management of uncertainty in quantitative risk analysis: absolute vs comparative assessment".
2013	-	Osservatorio penale, Ordine degli avvocati penalisti Roma	Speaker 3th Conference "Il reato colposo in ambiente lavorativo: analisi della normative e destinatari dei precetti, profili sostanziali e processuali", Roma 6 dicembre 2013 – "Le figure responsabili in materia di sicurezza. La delega di funzioni nel D. Lgs. 81/08"
2014	-	Woertz, Electro Suisse	Speaker Conference "Fire protection of emergency electrical devices: effect on the level of risk. The case study of a railway tunnel " 8 settembre 2014, Lugano
2014	-	Ferrovie dello Stato Italiane	Speaker Workshop "Apprendere dagli eventi avversi e imprevedibili" – Ferrovie dello Stato Italiane, Roma 8 aprile 2014.
2015	2017	Wessex Institute of Technology (WIT)	Member of Scientific Board International Journal of Safety and Security Engineering (WIT Press)
2015	-	Wessex Institute of Technology (WIT)	Member of International Scientific Advisory Committee "6th International Conference on Safety and Security Engineering – SAFE 2015"
2015	-	Wessex Institute of Technology (WIT)	Speaker « 6th International Conference on Safety and Security Engineering », Croatia, Opatija (May 06 - 08 2015)
2015	-	Istituto Superiore Antincendi, CNVvF-Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Speaker Conference "Alta formazione della sicurezza: venti anni di collaborazione dell'ISA con l'università, la ricerca e i gli ordini professionali" 27 novembre 2015, Roma presso Istituto Superiore Antincendi.
2015	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Speaker IV National Conference IV Sicurezza ed Esercizio Ferroviario, 2 ottobre 2015
2015	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma – Ordine degli Architetti Pianificatori Paesaggisti e Conservatori di Roma e Provincia	Speaker Workshop « Prevenzione e sicurezza del lavoro nel nuovo Codice degli Appalti Pubblici », 10 giugno 2015

2016	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Speaker Workshop “Progettazione prestazionale della sicurezza antincendio e valutazione quantitativa del rischio
2016	-	Università di Pisa, Istituto Superiore Antincendi, CNVvF	Speaker Conference VGR 2016 Valutazione e Gestione del Rischio negli Insediamenti Civili ed Industriali. Istituto Superiore Antincendi, Roma, 13-15 Settembre 2016
2017	-	Wessex Institute of Technology (WIT)	Conference Co-Chairman “7th International Conference on Safety and Security Engineering – SAFE 2017”
2017	-	Wessex Institute of Technology (WIT) and Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	Invited speaker Conference on Safety and Security Engineering – SAFE 2017
2017	-	Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma - EAMC	Speaker TuneIt & GrAlbeIt Workshop
2018	2020	Réseau Méditerranéen des Ecoles d’Ingénieurs – Ecole Centrale Marseille 38, rue Joliot-Curie 13451 MARSEILLE cedex 13 FRANCE	President
2018	-	Ministero dell’Interno, Dipartimento Dei Vigili Del Fuoco, Del Soccorso Pubblico E Della Difesa Civile Direzione Regionale Lazio	Member of Regional Technical Committee (CTR)
2018	-	Engineering Association of Mediterranean Countries (EAMC)	Coordinator of “Workers Safety in Civil Engineering Committee”

#### Part IV – Teaching experience

Year	Institution	Lecture/Course
2009 - 2011	13677-INGEGNERIA DEI SISTEMI DI TRASPORTO [LM (DM 270/04) - ORDIN. 2009] - LM-23 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	RISCHIO E SICUREZZA NEI CANTIERI E NELLE INFRASTRUTTURE (cod.: 1019006 SSD: ING-IND/28 – 9 CFU)
2010 - 2017	14481-INGEGNERIA DELLA SICUREZZA [L (DM 270/04) - ORDIN. 2010 INTERCLASSE CON L-7] - L-9 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	RISCHIO E SICUREZZA NEI CANTIERI (cod.: 1021997 SSD: ING-IND/28 – 9 CFU)
2012 - 2015	13677-INGEGNERIA DEI SISTEMI DI TRASPORTO [LM (DM 270/04) - ORDIN. 2009] - LM-23 - Facoltà di	ANALISI DI RISCHIO NELLE OPERE CIVILI (cod.: 1031862 SSD: ING-IND/28 – 6 CFU)

	Ingegneria Civile e Industriale, Sapienza Università di Roma	
2012 - 2015	00503-INGEGNERIA PER L'AMBIENTE E IL TERRITORIO [L (DM 509/99) - ORDIN. 1999] - SEDE DI LATINA – 8 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	INGEGNERIA DELLA SICUREZZA (cod.: 1003634 SSD: ING-IND/28 - 9 CFU)
2016- 2017	27592-INGEGNERIA DEI SISTEMI DI TRASPORTO - TRANSPORT SYSTEMS ENGINEERING [LM (DM 270/04) ORDIN. 2015 - Corso erogato in LINGUA INGLESE] - LM- 23 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	SAFETY AND RISK ANALYSIS (cod.: 1044013 SSD: ING-IND/28 - 6 CFU)
2016	28227-INGEGNERIA DELLA SICUREZZA E PROTEZIONE CIVILE [LM (DM 270/04) - ORDIN. 2016] - LM-26 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	SICUREZZA NEI CANTIERI (cod.: 1047989 SSD: ING-IND/28 – 6 CFU)
2015 - 2017	26015-INGEGNERIA CIVILE E INDUSTRIALE [L (DM 270/04) - INTERCLASSE con L-7 ORDIN. 2013] - SEDE DI LATINA - L-9 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	SICUREZZA (cod.: 1038496 SSD: ING- IND/28 - 9 CFU)
2017	25803-INGEGNERIA DELLA SICUREZZA [L (DM 270/04) - ORDIN. 2012 INTERCLASSE CON L-9] - L-7 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	RISCHIO E SICUREZZA NEI CANTIERI (cod.: 1047526 SSD: ING-IND/28 – 12 CFU)
2017	28227-INGEGNERIA DELLA SICUREZZA E PROTEZIONE CIVILE [LM (DM 270/04) - ORDIN. 2016] - LM-26 - Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma	ANALISI DI RISCHIO NELLE OPERE CIVILI (cod.: 1031862 SSD: ING-IND/28 – 6 CFU)

#### Part V - Society memberships, Awards and Honors

Year	Title
2018	Co-Editor of International Journal of Safety and Security Engineering (WIT Press) Wessex Institute of Technology (WIT)



**Part VI - Funding Information (role: Investigator (I), Principal Investigator (PI), Supervisor (S))**

Year	Title	Program	Role
2007	Modelli assicurativi ed indicatori di incidentalità ed infortunistica sul lavoro con riferimento all'utilizzo delle banche dati di settore e alle tecnologie di sicurezza B1 N 04/DTS/07	Finanziamento ricerca ISPESL/INAIL	I
2009	Technical Supervisor Fire safety design 20 school buildings (performance based design)	RpR Comune di Roma	PI
2009	Technical Supervisor Fire safety design 60 school buildings	RpR Comune di Roma	PI
2013	Modeling of fire scenarios and performance compliance: the case of railway stations C26A13PBZR	Progetti di Ricerca (Piccoli, Medi) Bando di Ateneo Sapienza 2012-2013	PI
2013	Scientific Director "Risk Analysis Flaminio Tunnel"	ATAC SpA	PI
2014	GIS4RISKS. Synergic use of GIS applications for analysing volcanic and seismic risks in the pre and post event C26M14XX7T	Progetti multidisciplinari 2014, Bando di Ateneo Sapienza 2013-2014	I
2015	Integrated design for occupational safety: technical, social and criminal responsibility profiles. C26C148Z35	Congressi e convegni, Bando di Ateneo Sapienza 2014-2015	PI
2015	FRASI: Framwork per il Rating della Sicurezza d'Impresa (ID 13)	Procedura valutativa per l'affidamento di collaborazioni onerose alle attività di ricerca dell'INAIL. Piano delle attività di ricerca 2013-2015 (Bando BRIC)	PI (DICMA)
2016	REPHASE: REsilience of Performance Human FActor for Safety of work Environment. RP1161550662F778	Progetti di Ricerca (Piccoli, Medi), Bando di Ateneo Sapienza 2015-2016	PI
2016	Scientific Director Training course on "Safety in road tunnels" ex Direttiva 54/2004/CE e D. Lgs. 264/2006	Start-up 3-FASE srl	PI
2017	Reliability and geostatistical	Progetti per Avvio alla	S

	methods related to spatio-temporal modeling of the components conditioning the hydrogeological instability. AR11715C58BE546F	Ricerca Bando di Ateneo Sapienza 2016-2017	
2018	Modeling of exodus flows for emergency management (Palio di Siena)	Comune di Siena	PI
2018	Scientific Director Responsabili della Sicurezza per le Gallerie Stradali Dlgs 264/06	Autostrade per l'Italia SpA	PI

## Part VII – Research Activities

Keywords	Brief Description
Fire Safety Engineering	The research analyses fire design settings according to Fire Safety Engineering (FSE) for the simulation of fire in civil and industrial activities and compares these simulations developed using natural and analytic fire curves. This analysis is focused to determining an original "likely fire model" that guarantees a greater adherence of the virtualized phenomenon with respect to the potential event. The analytic curve, adopted in order to verify the structural strength, in the beginning phases of fire produces fields of temperature and toxic concentrations lower than those obtained by simulation of the Likely Fire Curve. The assumption of the Likely Fire Curve model safeguards exposed people during self-rescue and emergency procedure. The main result shows that the safety criterion, implicitly included in the analytical fire curves - normally used for fire resistance - doesn't have the same applicability of a performance based approach on safety evaluation involving people. The Likely Fire Curve assumption involves a thermo-chemical stress more relevant to assessing the safety of exposed people (see LOMBARDI, M et al. - 2018. Fire design in safety engineering: likely fire curve for people's safety. WIT Transactions on The Built Environment, 174, 119-130).
Geostatistical analysis and modeling	A natural phenomenon, defined as geo-stochastic process, is characterized by interacting variables leading to identifying the most critical areas affected by instability. By means of a sensitivity analysis of the local variability as well as a reliability assessment of the time-based scenarios, an improvement of the forecasting content can be obtained. Moreover, the phenomenological characterization allows to optimize the attribution of the levels of resilience to the territory involved, supporting decision-making process for intervention priorities as well as the effective allocation of the available resources in social, environmental and economic contexts. (see Lombardi, M., Cardarilli, M., & Raspa, G. - 2017. Spatial variability analysis of soil strength to slope stability assessment. Geomechanics and Engineering, 12(3), 483-503).
Human Factor	The evaluation of human behavior in the risk model involves the definition of the function of reliability (or failure) of "human component" since the activities/procedures of a complex system involve a high probability of human error. The research analyzes a series of control checks for back analysis testing of accident occurrences and shows the

	<p>opportunity to perform quantitative risk analysis comparing alternative designs of complex system by analogical analysis methods. In this analysis the evaluation of human error, according to combined techniques of Ishikawa's theory and Quality Function Deployment is relevant in order to verify the effectiveness and safety of good practice usually employed (see LOMBARDI, M., &amp; FARGNOLI, M. - 2018. Prioritization Of Hazards By Means Of A Qfd-Based Procedure. Safety and Security Studies, 163).</p>
RAMS Approach	<p>Quantitative risk assessment adopted in the industrial activities refers the RAMS approach, according to EN 50126, to define the failure of complex system. Starting from the probability of failure follows the evaluation of the failure consequence, the accident occurrence and finally, the analysis of the achievable accident scenarios to quantify the damage. In this approach, the central idea is the failure occurrence, i.e., the incorrect performance of a function by a system component (see Lombardi, M., Rossi, G. - 2014. The Management of Uncertainty: model for evaluation of human error probability in railway system. American journal of applied sciences, 11(3), 381).</p>
Risk Analysis	<p>Risk analysis is an assessment tool developed to analyze the safety of potentially dangerous industrial processes or potentially dangerous industrial plants. The application of risk analysis should help to suggest a proactive safety strategy by evaluating potential risks. This safety strategy was to replace merely experience-based concepts learned from incidents (such as near miss) or accidents already happened. Risk analysis deals with potential negative consequences of events that could occur when considering a technical system in a social context. The only option in such a situation is to develop a representative model of the risks associated to the system in question. As there exists an unlimited number of possibilities of how dangerous effects may develop it is impossible to take all possible situations into account; therefore the only investigation is restricted to a limited number of selected representative scenarios. It should always be kept in mind that risk analysis is a model relying on preconditions and assumptions and is not a copy of reality. (see Guarascio, M., Lombardi, M., Rossi, G., &amp; Sciarra, G. - 2007. Risk analysis and acceptability criteria. WIT Transactions on the Built Environment, 94).</p>
Road and Rail Safety	<p>World Road Association – PIARC and several European research projects, have encouraged a reflection on risk analysis methods, acceptance criteria and safety practices applied to the road system. The main goal of this research activity is the definition of best practice for safety analysis and management applied to network TERN (Trans European Road Network). Quantitative Risk Analysis (QRA) provides much information on safety management, but the potential fragility of the method, stochastic uncertainties (both parameters and models), and ethical aspect of acceptability criteria should be adequately analyzed. This research activity focuses on all these aspects according to assess the reliability of QRA in order to investigate modeling and statistical errors and statistical consistency of Risk Indicators of QRA (see Guarascio, M., Lombardi, M., Rossi, G., &amp; Sciarra, G. – 2009. Risk analysis and reliability based design in tunnel fire safety WIT Transactions on the Built</p>

	Environment).
Occupational Safety	<p>The goal of this research is the analysis of statistical evidence between the size of organizational well-being, those of work - related stress according with HSE model Management Standards, and the propensity to accidents. Specially, the research aims to verify the original hypothesis of a statistically significant relationship between the increase of organizational well-being and resilience to risk, both about the single worker that about the working group, as measured by statistical indicators of organizational well-being and effective injury rate and in order to recognize, by analysis of familiarity (cluster analysis), factors of hazard and ways of injury most sensitive to increase of organizational well-being. Nowadays the development of techniques of psychosocial intervention for reducing residual risk, in support of the improvements in the safety design, are really common. Rarely the impact and effectiveness of these interventions, which should improve safety-oriented performance of individual worker and groups, were evaluated. The first objective is a measure of the effectiveness and efficiency of the organizational well-being and the safety awareness in the work. The research also aims to investigate the statistical relationships between the dimensions of organizational well-being, those of work-related stress and quantitative indicators of accidents, comparing, by means the ANOVA model, the variables obtained from an available sample with those of a check sample, by measuring the "pre and post" performance indicators. The study verifies (by means of exploratory analysis) a method of dynamic graphical investigation of the timing-evolution of accident, by using techniques of cluster analysis and graphical algebra (bow- tie diagram) in order to identify the areas of hazard where the intervention can produce some significant changes (see Lombardi, M., &amp; Rossi, G. - 2013. Cluster analysis of fatal accidents series in the Infor. MO database: analysis, evidence and research perspectives. International journal of safety and security engineering, 3(4), 317-331).</p>

### Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	28	Scopus	2007	2018
Papers [national]	27	Google scholar/Iris – DB Sapienza	2007	2018
Book Chapters [scientific]	2	Google scholar/Iris – DB Sapienza	2007	2018

### Part IX– Selected Publications

1) Fagnoli, M., Lombardi, M., Haber, N., Puri, D.

The impact of human error in the use of agricultural tractors: A case study research in vineyard cultivation in Italy (2018) Agriculture (Switzerland), 8 (6), art. no. 82 . Cited 2 times (1 time Scopus, 1 time Web of Science).

DOI: 10.3390/agriculture8060082

- 2) Fagnoli, M., Lombardi, M., Haber, N., Guadagno, F.  
Hazard function deployment: a QFD-based tool for the assessment of working tasks—a practical study in the construction industry (2018) *International Journal of Occupational Safety and Ergonomics*, . Article in Press. IF: 0,648. Cited 2 times (1 time Scopus, 1 time Web of Science).  
DOI: 10.1080/10803548.2018.1483100
- 3) Rossi, G., Lombardi, M., Di Mascio, P.  
Consistency and stability of risk indicators: The case of road infrastructures (2018) *International Journal of Safety and Security Engineering*, 8 (1), pp. 39-47. Cited 1 time (Scopus).  
DOI: 10.2495/SAFE-V8-N1-39-47
- 4) Fagnoli, M., Lombardi, M., Haber, N.  
A fuzzy-QFD approach for the enhancement of work equipment safety: A case study in the agriculture sector (2018) *International Journal of Reliability and Safety*, 12 (3), pp. 306-326.  
DOI: 10.1504/IJRS.2018.094943
- 5) Cardarilli, M., Lombardi, M., Guarascio, M.  
Preventive planning model for rescue priority management in seismic emergency (2018) *International Journal of Safety and Security Engineering*, 8 (2), pp. 307-319.  
DOI: 10.2495/SAFE-V8-N2-307-319
- 6) Alimonti, C., Lombardi, M., Cardarilli, M., Soldo, E.  
Reliability Analysis Applied on Land Subsidence Effects of Groundwater Remediation: Probabilistic vs. Deterministic Approach (2017) *Water Resources Management*, 31 (6), pp. 1745-1758. IF:2,644. Cited 1 time (Scopus).  
DOI: 10.1007/s11269-017-1596-7
- 7) Lombardi, M., Cardarilli, M., Raspa, G.  
Spatial variability analysis of soil strength to slope stability assessment (2017) *Geomechanics and Engineering*, 12 (3), pp. 483-503. IF: 1,818. Cited 3 times ((2 Scopus, 1 Web of Science).  
DOI: 10.12989/gae.2017.12.3.483
- 8) Alimonti, C., Lombardi, M.  
Reliability analysis for preliminary forecasts of hydrogeological unit productivity (2015) *Water Resources Management*, 29 (10), art. no. A019, pp. 3771-3785. IF: 1,501. Cited 2 times (Scopus).  
DOI: 10.1007/s11269-015-1028-5
- 9) Lombardi, M., Guarascio, M., Rossi, G.  
The management of uncertainty: Model for evaluation of human error probability in railway system (2013) *American Journal of Applied Sciences*, 11 (3), pp. 381-390. Cited 11 times (Scopus).  
DOI: 10.3844/ajassp.2014.381.390
- 10) Lombardi, M., Rossi, G.  
Cluster analysis of fatal accidents series in the Infor.Mo database: Analysis, evidence and research perspectives (2013) *International Journal of Safety and Security Engineering*, 3 (4), pp. 318-332. Cited 5 times (Scopus)  
DOI: 10.2495/SAFE-V3-N4-318-332

## Part X– Complete List of Publications

### Part X.A (Scopus and/or ISI web DB)

Fargnoli, M., Lombardi, M., Haber, N., Puri, D.  
The impact of human error in the use of agricultural tractors: A case study research in vineyard cultivation in Italy  
(2018) Agriculture (Switzerland), 8 (6), art. no. 82  
DOI: 10.3390/agriculture8060082

Garzia, F., Lombardi, M.  
The role of BIM for safety and security management  
(2018) International Journal of Sustainable Development and Planning, 13 (1), pp. 49-61.  
DOI: 10.2495/SDP-V13-N1-49-61

Garzia, F., Lombardi, M.  
Safety and security management through an integrated multidisciplinary model and related integrated technological framework  
(2018) WIT Transactions on the Built Environment, 174, pp. 285-296.  
DOI: 10.2495/SAFE170261

Lombardi, M., Fargnoli, M.  
Prioritization of hazards by means of a QFD-based procedure  
(2018) International Journal of Safety and Security Engineering, 8 (2), pp. 342-353.  
DOI: 10.2495/SAFE-V8-N2-342-353

Cardarilli, M., Lombardi, M., Guarascio, M.  
Preventive planning model for rescue priority management in seismic emergency  
(2018) International Journal of Safety and Security Engineering, 8 (2), pp. 307-319.  
DOI: 10.2495/SAFE-V8-N2-307-319

Rossi, G., Lombardi, M., Di Mascio, P.  
Consistency and stability of risk indicators: The case of road infrastructures  
(2018) International Journal of Safety and Security Engineering, 8 (1), pp. 39-47.  
DOI: 10.2495/SAFE-V8-N1-39-47

Fargnoli, M., Lombardi, M., Haber, N.  
A fuzzy-QFD approach for the enhancement of work equipment safety: A case study in the agriculture sector  
(2018) International Journal of Reliability and Safety, 12 (3), pp. 306-326.  
DOI: 10.1504/IJRS.2018.094943

Fargnoli, M., Lombardi, M., Haber, N., Guadagno, F.  
Hazard function deployment: a QFD-based tool for the assessment of working tasks—a practical study in the construction industry  
(2018) International Journal of Occupational Safety and Ergonomics. Article in Press. IF: 0,648  
DOI: 10.1080/10803548.2018.1483100

Lombardi, M., Rossi, G., Sciarretta, N., Grossi, L., Oranges, N.  
Fire design in safety Engineering: Likely fire curve for people's safety  
(2018) WIT Transactions on the Built Environment, 174, pp. 119-130.  
DOI: 10.2495/SAFE170111

Cancelliere, P., Lombardi, M., Ponticelli, L., Gissi, E., Gai, G., Caciolai, M.  
Italian hybrid fire prevention code  
(2018) WIT Transactions on the Built Environment, 174, pp. 107-117.  
DOI: 10.2495/SAFE170101

Borghini, F., Garzia, F., Lombardi, M., Mete, M., Perruzza, R., Tartaglia, R.  
Human factor analysis inside a peculiar job environment at the Gran Sasso mountain underground laboratory of Italian National Institute for Nuclear Physics  
(2018) International Journal of Safety and Security Engineering, 8 (3), pp. 390-405.  
DOI: 10.2495/SAFE-V8-N3-390-405

Garzia, F., Lombardi, M., Ramalingam, S.  
An integrated internet of everything - Genetic algorithms controller - Artificial neural networks framework for security/safety systems management and support, (2017) Proceedings - International Carnahan Conference on Security Technology, 2017-October, pp. 1-6.  
DOI: 10.1109/CCST.2017.8167863

Gambetti, M., Garzia, F., Bonilla, F.J.V., Ciarlariello, D., Ferrer, M.A., Fusetti, S., Lombardi, M., Ramalingam, S., Ramasamy, M., Sacerdoti, S., Sdringola, A., Thirupati, D., Zanuy, M.F.  
The new communication network for an internet of everything based security/safety/general management/visitor's services for the Papal Basilica and Sacred Convent of Saint Francis in Assisi, Italy  
(2017) Proceedings - International Carnahan Conference on Security Technology, 2017-October, pp. 1-6.  
DOI: 10.1109/CCST.2017.8167795

Baiocchi, V., Dominici, D., Guarascio, M., Lombardi, M., Vatore, F.  
Mapping seismic vulnerability in buildings by means of open source tools and open data  
(2017) Geoingegneria Ambientale e Mineraria, 151 (2), pp. 27-32.

Lombardi, M., Garzia, F., Guarascio, M., Giovannone, E.P., Giampaoli, A., Musti, M., Ranalli, M.T., Perruzza, R., Tartaglia, R.  
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  
(2017) Revista Escola de Minas, 70 (3), pp. 307-315.  
DOI: 10.1590/0370-44672016700141

Parise, G., Parise, L., Lombardi, M., Hesla, E.  
A new way to be a forensic electrical expert  
(2017) 2017 IEEE/IAS 53rd Industrial and Commercial Power Systems Technical Conference, I and CPS 2017, art. no. 7945119.  
DOI: 10.1109/ICPS.2017.7945119

Alimonti, C., Lombardi, M., Cardarilli, M., Soldo, E.  
Reliability Analysis Applied on Land Subsidence Effects of Groundwater Remediation: Probabilistic vs. Deterministic Approach  
(2017) Water Resources Management, 31 (6), pp. 1745-1758. IF:2,644.  
DOI: 10.1007/s11269-017-1596-7

Lombardi, M., Cardarilli, M., Raspa, G.  
Spatial variability analysis of soil strength to slope stability assessment  
(2017) Geomechanics and Engineering, 12 (3), pp. 483-503. IF: 1,818  
DOI: 10.12989/gae.2017.12.3.483

Parise, G., Parise, L., Lombardi, M., Hesla, E., Mitolo, M., Mardegan, C.  
Functions and duties of the forensic electrical engineer  
(2016) Conference Record - Industrial and Commercial Power Systems Technical Conference, 2016-June, art. no. 7490237.  
DOI: 10.1109/ICPS.2016.7490237

Alimonti, C., Lombardi, M.  
Reliability analysis for preliminary forecasts of hydrogeological unit productivity

(2015) *Water Resources Management*, 29 (10), art. no. A019, pp. 3771-3785.  
IF: 1,501  
DOI: 10.1007/s11269-015-1028-5

Parise, G., Parise, L., Lombardi, M.  
Collision theory in electric shock risk assessment  
(2015) 2014 AEIT Annual Conference - From Research to Industry: The Need for a More Effective Technology Transfer, AEIT 2014, art. no. 7002031. Cited 1 time (Scopus)  
DOI: 10.1109/AEIT.2014.7002031

Lombardi, M., Guarascio, M., Rossi, G.  
The management of uncertainty: Model for evaluation of human error probability in railway system  
(2013) *American Journal of Applied Sciences*, 11 (3), pp. 381-390.  
DOI: 10.3844/ajassp.2014.381.390

Guarascio, M., Lombardi, M., Massi, F.  
Risk analysis in handling and storage of petroleum products  
(2013) *American Journal of Applied Sciences*, 10 (9), pp. 965-978.  
DOI: 10.3844/ajassp.2013.965.978

Lombardi, M., Rossi, G.  
Cluster analysis of fatal accidents series in the Infor.Mo database: Analysis, evidence and research perspectives  
(2013) *International Journal of Safety and Security Engineering*, 3 (4), pp. 318-332.  
DOI: 10.2495/SAFE-V3-N4-318-332

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G.  
Geostatistics/reliability based risk analysis of the Vajont landslide  
(2009) *WIT Transactions on the Built Environment*, 108, pp. 607-615.  
DOI: 10.2495/SAFE090561

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G.  
Risk analysis and reliability based design in tunnel fire safety  
(2009) *WIT Transactions on the Built Environment*, 108, pp. 575-584.  
DOI: 10.2495/SAFE090531

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G.  
Risk analysis and acceptability criteria  
(2007) *WIT Transactions on the Built Environment*, 94, pp. 131-138.  
DOI: 10.2495/SAFE070131

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G.  
Road tunnel safety rules in Italy: The tunnel country  
(2007) *WIT Transactions on the Built Environment*, 94, pp. 317-326.  
DOI: 10.2495/SAFE070311

Part X.B (Google Scholar)

Garzia, F., Lombardi, M., & Papi, L.  
Analysis and data acquisition methodology based on flying drones for the implementation of the internet of everything to smart archaeological areas.  
(2018).  
*International Journal of Heritage Architecture*, 2, 383-394.

Gambetti, M., Garzia, F., Baiocchi, V., Lombardi, M., et al.  
The Internet of Everything System for the Papal Basilica and Sacred Convent of Saint Francis in Assisi, Italy



(2017)

Proc. of WEF (World Engineering Forum)-Safeguarding Humankind's Heritage, The Great Challenge for Engineers

Lombardi, M., Rossi, G., Parise, G.

La gestione del rischio elettrico nelle attività di cantiere

(2016)

Atti di Convegno VGR 2016 Valutazione e Gestione del Rischio negli Insediamenti Civili ed Industriali. Istituto Superiore Antincendi, Roma, 13-15 Settembre 2016

Rossi, G., Lombardi, M., Di Mascio, P.

La misura della sicurezza: affidabilità e sostenibilità degli indicatori di rischio. Il caso delle infrastrutture stradali.

(2016)

Atti di Convegno VGR 2016 Valutazione e Gestione del Rischio negli Insediamenti Civili ed Industriali. Istituto Superiore Antincendi, Roma, 13-15 Settembre 2016

Sciarretta, N., Lombardi, M., Rossi, G.

Pianificazione della sicurezza antincendio negli asili nido: "scenari d'incendio per la gestione dell'esodo in emergenza.

(2016)

Atti di Convegno VGR 2016 Valutazione e Gestione del Rischio negli Insediamenti Civili ed Industriali. Istituto Superiore Antincendi, Roma, 13-15 Settembre 2016

Cardarilli, M., Lombardi, M.

Analisi della Variabilità Spaziale della Resistenza del Terreno per la Valutazione della Stabilità di un Pendio.

(2016)

Atti di Convegno VGR 2016 Valutazione e Gestione del Rischio negli Insediamenti Civili ed Industriali. Istituto Superiore Antincendi, Roma, 13-15 Settembre 2016

Rossi, G., Lombardi, M., Guarascio, M., Sciarretta, N.

La rilevanza della disponibilità e dell'affidabilità dei sistemi vitali sulla sicurezza delle gallerie ferroviarie.

(2015)

Proceedings IV Convegno Nazionale SICUREZZA ED ESERCIZIO FERROVIARIO Soluzioni e Strategie per lo Sviluppo del Trasporto Ferroviario.  
ISBN: 9788854887725

Lombardi, M., Rossi, G., Sciarretta, N.

Progetto e verifica delle procedure. Efficacia, efficienza, sicurezza, resilienza e resistenza.

(2015)

Proceedings IV Convegno Nazionale SICUREZZA ED ESERCIZIO FERROVIARIO Soluzioni e Strategie per lo Sviluppo del Trasporto Ferroviario.  
ISBN: 9788854887725

Accettura, A., Carelli, G., Di Maio, F., Donarelli, S., Garzia, F., Lombardi, M.

Early warning system for the prevention and control of unauthorized accesses to air navigation services infrastructures

(2015)

WIT Transactions on The Built Environment, 151, 191-201

DOI:10.2495/SAFE150171

Lombardi, M., Rossi, G.

Fire protection of emergency electrical devices: effect on the level of risk—a case study of a rail tunnel

(2015)

WIT Transactions on The Built Environment, 151, 73-83

DOI: 10.2495/SAFE150071

Accettura, A., Aufiero, M., Lombardi, M. et al.  
Oneiric stress and safety and security at work: The discovery of a new universal symbol  
(2015)  
WIT Transactions on The Built Environment, 151, 299-308  
DOI:10.2495/SAFE150261

Pesaresi, C., Lombardi, M.  
GIS4RISKS project. Synergic use of GIS applications for analysing volcanic and seismic risks in the pre and post event  
(2015)  
Rivista J-Reading n. 2-2014: Journal of research and didactics in geography, 2, 9-32  
DOI: 10.4458/4403-022

Lombardi, M.  
Applicazione della cluster analysis ad un campione di infortuni mortali del database Infor.MO: predittività e prevenzione.  
(2014)  
Ambiente e sicurezza sul lavoro  
ISSN 0393-7054

Lombardi M., Rossi G.  
Sicurezza del lavoro: interpretazione tecnica e prospettive.  
(2014)  
Sindacalismo, Trimestrale Rivista di studi sulla rappresentanza del lavoro nella società globale (n° 26).

Lombardi, M., Rossi, G., Sciarretta, N., Oranges, N.  
Fire design: direct comparison between fire curves. The case study of a nursery  
(2013)  
American journal of engineering and applied sciences, 6 (3), 297-308  
DOI: 10.3844/ajeassp.2013.297.308

Lombardi, M.  
Approccio integrato alla sicurezza del lavoro: analisi di affidabilità, di ergonomia e di rischio delle procedure di lavoro.  
(2012).  
Sicurezza del lavoro, benessere organizzativo e costi sociali, vol. unico, pp. 13-19

Guarascio, M., Lombardi, M., Rossi, G.  
Sicurezza ferroviaria: evoluzioni degli scopi e dei metodi di valutazione del rischio.  
(2011).  
Sicurezza ed esercizio ferroviario: innovazione e nuove sfide nei sistemi ferroviari.  
vol. unico, p. 25-34, ROMA  
ISBN: 9788886658645

Guarascio, M., Lombardi, M., Rossi G.  
Valutazione cindynica alla gestione della sicurezza ferroviaria: finalità, attori, poteri e responsabilità nel sistema definito dalla Direttiva 2004/49 CE.  
(2011)  
Sicurezza ed esercizio ferroviario. vol. unico, p. 35-44, ROMA  
ISBN: 9788886658645

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G., Lamendola, S.  
Analisi di rischio quantitativa probabilizzata per le gallerie stradali secondo le Linee guida ANAS.  
(2009)  
Proceedings – “Sicurezza nei sistemi complessi”

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G.  
Analisi di rischio e progettazione prestazionale degli impianti per la sicurezza delle gallerie.  
(2009)  
Proceedings "Sicurezza nei sistemi complessi"

Garzia, F., Sammarco, E., Cusani, R., Guarascio, M., Lombardi, M.  
Sistema integrato di controllo accessi per porti.  
(2009)  
Proceedings "Sicurezza nei sistemi complessi"

Guarascio, M., Lombardi, M., Rossi, G.  
Analisi dell'incidentalità ferroviaria. Aspetti metodologici e pratica attuativa.  
(2009)  
Proceedings I Convegno di Sicurezza Ferroviaria - Facoltà di Ingegneria, Università di Roma La Sapienza

Guarascio, M., Lombardi, M., Rossi, G.  
L'Analisi di Rischio nelle gallerie ferroviarie. Basi etiche e sociali dei criteri di accettabilità.  
(2009)  
Proceedings I Convegno di Sicurezza Ferroviaria - Facoltà di Ingegneria, Università di Roma La Sapienza

Guarascio, M., Lombardi, M., Rossi, G., Sciarra, G.  
Risk analysis of road and rail tunnels for integral design  
(2008)  
Proceedings HE in structural engineering - Facoltà di Ingegneria, Università di Roma La Sapienza

Guarascio, M., Lombardi, M., Rossi, G.  
L'Analisi di Rischio nel Quadro Normativo.  
(2007)  
Sicurezza In Galleria: Normativa, Progetti Nuove Tecnologie (S.I.G.). Genova, 27-28 MARZO 2007



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