

## **Curriculum vitae di Riccardo DeSalvo**

Sottosettori ERC primari: *PE2-3 PE2-5 PE8-7*

Eventuali sottosettori ERC secondari: *PE3-1 PE9-11PE11-3*

### **PERSONAL DETAILS**

DeSalvo, Riccardo:

Birthdate: February 3<sup>rd</sup> 1957

Researcher unique identifier: <https://orcid.org/0000-0002-4818-0296>

#### **• Education and key qualifications**

01/06/1979 PhD

Department of physics, University of Pisa, Italy

#### **• Current position(s)**

April 2025 – current founder and Chief Scientific Officer

Fermi Power Systems, 450 Park Avenue, 27th Floor, New York, NY 10022

2010 to current Adjunct Visiting Professor and Member of “Collegio di Dottorato”

University of Sannio, Benevento, Italy

#### **• Previous position(s)**

- 2023 - 2024 Direttore, Ultra Safe Nuclear Italia: Milano, MI, IT
- META Research Lab - 2016 to 2023, Lead Scientist
- California State University, Los Angeles/Northridge, CA - 2014 to 2018, Senior Resident
- KAGRA, ICRR (Institute of Cosmic Ray Research), University of Tokyo, Kashiwa, Japan - 2010 to 2013, Associate Scientist
- Caltech, Pasadena, CA - 1998 to 2010, LIGO GW Project, Senior Staff Scientist
- INFN (National Institute for Nuclear Physics) sezione di Pisa, Italy - 1995 to 1998, “Primo Tecnologo” (Applied Scientist)
- HPD (Hybrid Photo Diode) - 1991 to 1997, P.I. and Project Leader
- CERN (European Center for Nuclear Research) Geneva (CH), LAA Project - 1988 to 1994, Staff Scientist
- Laboratory of Nuclear Studies at Cornell University - 1984 to 1988, Staff Physicist
- CERN (European Center for Nuclear Research) Geneva - 1980 to 1983, CERN fellow

### **Honors**

- **Breakthrough Prize** Laureate for discovery of gravitational waves.

### **RESEARCH ACHIEVEMENTS AND PEER RECOGNITION**

#### **Book**

- *Optical Coatings and Thermal Noise in Precision Measurements*, Cambridge University Press

#### **Peer Reviewed Articles**

##### **GW detection**

- Abbott, Benjamin P., et al. “*Observation of gravitational waves from a binary black hole merger*” Physical review letters 116.6 (2016): 061102.
- Abbott, Benjamin P., et al. “*GW170817: Observation of Gravitational Waves from a Binary Neutron Star Inspiral*” Physical review letters, 119.16 (2017): 161101

### Thermal noise in mirrors

- Villar Akira et al. (2010). *Measurement of thermal noise in multilayer coatings ...* PHYS.REV. D, vol. 81,; 1550-7998
- Tarallo Marco et al.. (2007). *Generation of a flat-top laser beam for....* APPLIED OPTICS, vol. 46, p. 6648-6654

### Seismic attenuation systems

- Stochino Alberto, et al. (2009). *The Seismic Attenuation System (SAS)* N.I.M. , vol. 598, p. 737-753,
- Abbott B. P., et al., *LIGO: the Laser Interferometer*. REPORTS ON PROGRESS IN PHYSICS, vol. 72, (2009).
- Takahashi et al.. (2008). *Operational status of TAMA300*. CQG, vol. 25, ISSN: 0264-9381,
- Takamori A, et al. *Mirror suspension system for the TAMA SAS*. CQG, vol. 19, p. 1615-1621, (2002).
- Cella G, DeSalvo R, et al. *Seismic attenuation performance of the first ..* NIM, vol. 487, p. 652-660,
- Cella G, et al. *Monolithic geometric anti-spring blades*. NIM, vol. 540, p. 502-519,
- Losurdo G, et al., (1999). *An inverted pendulum preisolator ...* REV. OF SCI. INST., vol. 70, p. 2507-2515,
- Beccaria M, at al., (1997). *Extending the VIRGO gravitational wave ..* NIM , vol. 394, p. 397-408

### Mechanical Noise in materials

- DeSalvo et al. *The role of Self-Organized Criticality in elasticity*. EPSJ+, vol. 126 (2011).
- DeSalvo, Riccardo. *"Unaccounted source of errors in measurements G."* Physics Letters A 379.18: 1202-1205. (2015) A. O'Toole, et al., *Design and initial characterization of a compact...Accelerometer*. Rev. Sci. Instr 85, 075003 (2014). Virdone Nicole, (2008). *Extended-time-scale creep measurement ...* NIM , vol. 593, p. 597-607, ISSN: 0168-9002, Beccaria M, et al., (1998). *The creep problem in the VIRGO suspensions*. NIM , vol. 404, p. 455-469

### Third generation G detectors

- Punturo M., et al., *The Einstein Telescope: a third-generation* CQG, vol. 27
- Hild S., et al. R (2010). *A xylophone configuration for a third-generation gravitational wave detector*. CQG, vol. 27
- Harms Jan, et al. (2009). *Simulation of underground gravity gradients from stochastic seismic*. PHYS.REV. D, vol. 80,
- Conforto G, DeSalvo R. *Proposal for lower frequency companions for the advances LIGO*. NIM , vol. 518, p. 228-232
- Kamp Carl et al. *Directional radiative cooling thermal compensation for gravitational ....* NIM, vol. 607, p. 530-537

### Light detectors

- DeSalvo, R., et al. *"First results on the hybrid photodiode tube."* NIM: 315.1-3 (1992): 375-384.
- Benetti P, et al. (1995). *Speed properties of the hybrid photodiode tube*. NIM, vol. 367, p. 384-387,
- R. DeSalvo, *Why people like the Hybrid Photo Diode*. Nucl. Instr. and Meth., A : 387, 92-96 (1997)

### Detectors and experiments for neutral pion lifetime measurements

- Atherton, W., et al. *"Direct measurement of the lifetime of the neutral pion."* Physics Letters B 158.1 (1985): 81-84.

### Detectors and experiments for proton elastic scattering and cross section

- Mondardini, Maria Rosa. Et al. *"A new detector for low-Pt physics."* NIM B-Proceedings Suppl. 25 (1992): 294-297.
- Avila C, et al. *The ratio, rho, of the real to the imaginary part of the (p)over-bar....* Phys Lett B, vol. 537, p. 41-44,
- Amos, N., et al. *"Drift-pots for small angle elastic scattering at the Fermilab collider."* NIM 252.2-3 (1986): 263-266.
- Avila C, et al. *A measurement of the proton-antiproton total cross*. PHYS.LETT.. B, vol. 445, p. 419-422 (1999).

### **Detectors for and measurements of quark mixing matrices**

- Katayama, Nobuhiko, et al. "Test installation of a 2.3 cm radius beam pipe and vertex" NIM283.3 (1989): 539-543.
- Cassel, David G., et al. "Design and construction of the CLEO II drift chamber." NIM 252.2-3 (1986): 325-330.
- Kubota, Yuichi, et al. "The CLEO II detector." NIM 320.1-2 (1992): 66-113.
- Chen, W-Y., et al. "Measurement of Ds decay modes." Physics Letters B 226.1-2 (1989): 192-196.

### **Scintillating and Quartz fiber calorimetry**

- Anzivino G, et al.(1995). *Quartz fibers: A new calorimetry for multi-TeV, very forward.* NUC. PH.. B, p. 168-172,
- DeSalvo, R., et al. "A novel way of electron identification in calorimeters". NIM 279.3 (1989): 467-472.

### **Spectroscopy**

- Campani, E., De Salvo, R. "Measurement of the 6P 3/2 lifetime of cesium, Lett. Nuo. Cim. (1980): 485-490.

### **Outreach**

- Riccardo DeSalvo, *Time dependences of atmospheric Carbon dioxide fluxes* <http://arxiv.org/abs/1409.2854>

### **Reviews**

- DeSalvo R: *Accelerometer Development for Use in Gravitational.* BUL. SEISM. SOC. OF A, vol. 99, p. 990-997, (2009).
- DeSalvo R, *Passive, Nonlinear, Mechanical Structures for Seismic Attenuation.* JCNLP, vol. 2, p. 290-298,
- DeSalvo R, *Why people like the Hybrid PhotoDiode.* NIM , vol. 387, p. 92-96, (1997).

### **Refereeing, some reviewing activities:**

- Review panel (December 2012) for the DOE-funded picosecond imaging light detection development program at Argonne National Lab.
- Referee for several scientific journals (Nucl. Inst. and Meth., Rev. Sci. Instr., Phys. Rev., Class. Quantum Grav., Eur. Phys. J., et c.).

### **Scientific contributions:**

#### Instruments designed and built by the author and his mentees contributed to:

- Measurements of the Kobayashi-Maskawa quark mixing matrix
- Proton anti proton cross section measurements
- Neutral pion lifetime
- Gravitational wave detection
- Discovery of the galactic sources of heavy metals
- Advanced light detection and metrology
- Advanced calorimetry of particles
- Tactile virtual reality technology

#### **Peer recognition (last few years):**

- Invited lecturer at: Joint *EPS-SIF International School on Energy 2023*, Global Challenges for Energy Sustainability, Villa Monastero - Varenna, July 2023 "The Micro Modular Reactors MMR"
- Invited speaker at: Ettore Majorana foundation and centre for scientific culture, international seminars on planetary emergencies, Erice, August 2023, Energy permanent monitoring panel "The era of Ultra-Safe Nuclear Micro Modular Reactors"
- Invited speaker at: *Nucleare in Italia scenari e prospettive*, Sala della Regina, *Camera dei Deputati*, Palazzo di Montecitorio 20 luglio 2023
- Invited speaker at: *Linee generali di un nuovo piano energetico nazionale*, Sala Capitolare del *Senato della Repubblica*, settembre 2023

Riccardo DeSalvo, Socio Accademia di Ingegneria e Tecnologia

- Invited speaker at: L'energia Nucleare nell'anno della Svolta, Senato della Repubblica, Sala degli atti parlamentari, Piazza della Minerva, 38, Roma, 5 Marzo 2025
- Invited speaker at: Audizione Camera dei Deputati della Repubblica su energia nucleare e transizione energetica Mercoledì 19 Febbraio 2025
- Invited member of AIDIC, Associazione Italiana Di Ingegneria Chimica

**ADDITIONAL INFORMATION**

**Other contributions to the research community**

Founding father of Virgo-LIGO gravitational wave detection network/collaboration