

**Curriculum Vitae et Honorum**  
**Prof. Roberto Battiston**

**Prof. Roberto Battiston**

Chair of Experimental Physics  
Physics Department  
University of Trento  
Via Sommarive 14,  
38123 Povo (ITALY)



Nationality: Italian

Born : [REDACTED]

Roberto Battiston was born in [REDACTED]. He is married and father of four.

He received his Laurea degree at Scuola Normale Superiore di Pisa in 1979, and his Ph.D. degree at the University of Paris IX (1982).

He has been nominated full Professor of Physics at the University of Perugia, Italy, in 1992.

He is full Professor of Experimental Physics at the University of Trento, Italy, since 2012.

His research has focused on experimental high energy and astroparticle physics with accelerators and in space:

- strong interactions, electroweak interaction physics including the discovery of the W and Z bosons - with the UA2 experiment at the SPS-p $\bar{p}$  Collider;
- measurement of the number of neutrino families – with the SLD experiment at SLAC
- search for the Higgs bosons and study of the quark b and tau lepton physics – with the L3 experiment at LEP;
- search for antimatter and dark matter in Cosmic Rays – with the AMS experiment on the Shuttle and on the International Space Station.
- study of the ionospheric, magnetospheric, lithospheric coupling associated to seismic events with the experiment Limadou-CSES.

He has always been interested on the experimental study of the fundamental properties of matter and fields, designing and developing advanced instruments to perform precision measurements.

Over a period of 35 years he has made significant contributions to the development of new particle detectors, in particular extending the potential of silicon microstrip detectors and other particle detectors, from ground based accelerator experiment, to space born experiments. In 1990 he started an international Collaboration to design and build a Silicon Microstrip Detector for the L3 experiment at LEP to tag and precisely study  $\tau$  and b decays of the  $Z^0$  boson.

In 1994 he proposed, together with Nobel laureate Prof. Samuel C.C. Ting of MIT and CERN, the Alpha Magnetic Spectrometer (AMS) on the International Space Station (ISS). For more than 20 years (1994-2014) he led the large Italian participation (ASI and INFN) to build the AMS experiment, of which he has been the Deputy Spokesperson. The engineering version of the experiment, AMS-01, was flown successfully for 10 day on the Shuttle Discovery in 1998, collecting about 100 million of

Cosmic Ray; the final version, the AMS-02 spectrometer, has been installed on the ISS in 2011 and is taking data since. In nine years has collected more than 150 B of cosmic rays: in 2019, an outstanding series of EVAs by the ESA ISS Commander Luca Parmitano and NASA Andrew Morgan, improved AMS-02 lifetime extending its data taking to the end of ISS operations, roughly doubling the statistics collected so far.

AMS has provided a wealth of accurate data on Cosmic Rays up to the multi TeV region, finding a number of new and unexpected features in spectral shape and composition, in particular s out the rare cosmic ray antimatter component (positrons and antiprotons). These data are today the reference for Cosmic Rays data: some of their unexplained features, most notably the excess of positrons vs electrons in the 300-800 GeV energy window and the flat behavior of antiprotons/proton ratio extending to the 400 GeV region, could be interpreted as indirect evidence of dark matter particles annihilations. A dozen of unexpected antihelium candidates have also been observed and are subject to detailed study.

Since 2001 he has been investigating the effects of the interactions between lithosphere and the upper layers of the atmosphere, ionosphere and magnetosphere, searching for correlations from space which might be linked to large earthquakes. During fall of 2005 he has proposed to the China Earthquake Administration (CEA) to install an Italian particle detector on a Chinese remote sensing satellite to study in details the phenomenon of Van Allen Belts instabilities in conjunction with large earthquakes. The proposal has been endorsed by the Chinese government and, after 6 years of development, the CSES satellite has been launched in February 2018 for 5 years of operation. It is expected to deliver highest quality data ever on precipitating VAB particles to be studied in correlation with earthquakes.

Professor Battiston has also been active transferring the results and technologies of basic research into advanced applications in various fields. Examples are: applications to renewable energy (where he owns two patents), electronics upgrading and qualification for extreme environments (where he owns a patent and he funded a successful spinoff devoted to these topics), application of superconductors to active radiation shielding during manned exploration flights (he led an ESA and a EU FP7-H2020 study on this issue), laser ablative propulsion for space applications (he developed a specialized laboratory in Trento).

He founded in 2000 the SERMS Laboratory at Terni (I) (<http://serms.unipg.it/>) and in 2004 the SERMS academic spinoff which has evolved since in a successful company which has recently been purchased by the Umbra Cuscinetti holding.

During the period 2004-2008 he has been coordinating the INFN MEMS project, devoted to the development of innovative particle detectors using the MEMS (Micro Electro Mechanics Systems) technology. This activity, in collaboration with FBK-Trento, resulted in the development of a new kind of Photo Multiplier, the Silicon Photo Multiplier, which is today competing with the standard multi-anode Photo Multipliers.

Since June 3<sup>rd</sup> 2009 and up to mid 2014 he has been the President of the National Committee for Astroparticle Physics of the National Institute for Nuclear Physics (INFN), a Committee which funds all the research activities in this field of fundamental research in Italy, including space science. The Committee oversees the funding of about 1000+ scientists nationwide.

In May 14<sup>th</sup> 2014 he has been nominated President of the Italian Space Agency (ASI). In this role he led, until the end of his term in 2018, the Italian Delegation at the ESA Council, reporting directly to the Minister of Research, University and Education. He has participated to 2 ESA Ministerial Councils (Luxembourg-2014 and Luzern-2016) and one Intermediated Ministerial Council (Madrid-2018). During his terms in ASI, the public budget devoted to space in Italy nearly doubled and new important space programs (VegaC, VegaE, Space Rider, Italian Space Economy Plan, Cosmo Sky Med Second Generation, Limadou-CSES-2) were approved.

In 2014 he has been elected vice-President of the International Astronautical Federation, the largest association in the field of space in the world (2014-2017).

Since 1994, his scientific interest has been the study of Astroparticle Physics from Space. He has been invited to talk or to be convener at most important conferences in this field. He also started a series of conferences devoted to this topic, the SPACE PART conference series, the second of which has been sponsored by NASA at Washington, while the third took place at Beijing in 2006 and the fourth at CERN in 2012.

He has been member of several scientific committees on space sciences both at national (ASI, INFN, Ministry of Research) and international (ESA, EU, Japan) level. In 2019 he started the New Space Economy Expoforum: the first edition took place in Rome, 10-12<sup>th</sup> December 2019, with more than 5000 participants and 140 exhibitors.

#### **Committee memberships:**

- Member of the Scientific Council of IRST (Trento) (1995).
- Member of the ASI Scientific Committee (1997-1999), (2010-11)
- Member of the Scientific Council of IFC Milano (1998-2002).
- Member of the ESA Fundamental Physics Advisory Group (FPAG) (1999 - 2002)
- Member of the Joint Space Science Advisory Group (JSSAG) representing MIUR (2001)
- Director of the Perugia INFN Section and member of the National INFN Directorate (2001-7).
- Member of the Board or Directors (CDA) of INAF (2004-7)
- Chair of the CSIC evaluation committee for the Physical Sciences (2005, 2009) (Spain)
- Member of the CRUI Expert Committee for the 7th EU FP (2005-6)
- Member of the ESFRI Expert Committee for Large Infrastructures for Astrophysics and Astroparticle Physics (2005-6) (EU)
- Member of the Ministry of Environment Committee on the Solar Energy Technologies (2008)
- President of the National Committee for Astroparticle Physics of INFN (2009-2014)
- Member of the ANVUR panel for the 2004-2011 evaluation of the research in Italy (2011-12)
- Member of CEPR, Committee of Experts on Research Policies advising the Minister of Research (2013-14)
- President of the Italian Space Agency (ASI) (2014-2018), Head of the Italian delegation at the ESA Council and EU Commission
- Vice-President of International Astronautical Federation (IAF) (2015-2017)
- Member of the board of directors of the Bruno Kessler Foundation (FBK) (2019-)
- President of the Edoardo Amaldi Foundation (FEA) (2017-2019)
- Member of GSA Administrative Board, representing the European Parliament (2019-)

#### **Prizes and awards**

- Laurea Honoris Causa at the University of Bucarest (2000).
- Internazionale Prize San Valentino d' Oro (2010)
- Prize La Rosa dell' Umbria (2011)
- Chevalier de la Legion d'Honneur (2017)
- Prize Vladimir Syromniatnikov (2017)
- In 2017 the asteroid 21256-1996CK has been named 21256 Robertobattiston
- Prize Space Economy (2017)
- Commendatore of the Italian Republic (2019).
- Hall of Fame of the International Astronautical Federation (2019)
- International Science and Technology Cooperation Award – China (2019)

#### **Spoken languages**

Mother Tongue: Italian

Other languages:

	Reading Skills	Writing skills	Verbal Skills
English	Excellent	Very Good	Excellent
French	Excellent	Basic	Excellent
German	Basic	Basic	Basic

## Publications

He is the author of more than 486 scientific papers; his personal h-index is 58 (from ISI WoS database). He is author of three patents and founder of an academic spinoff.

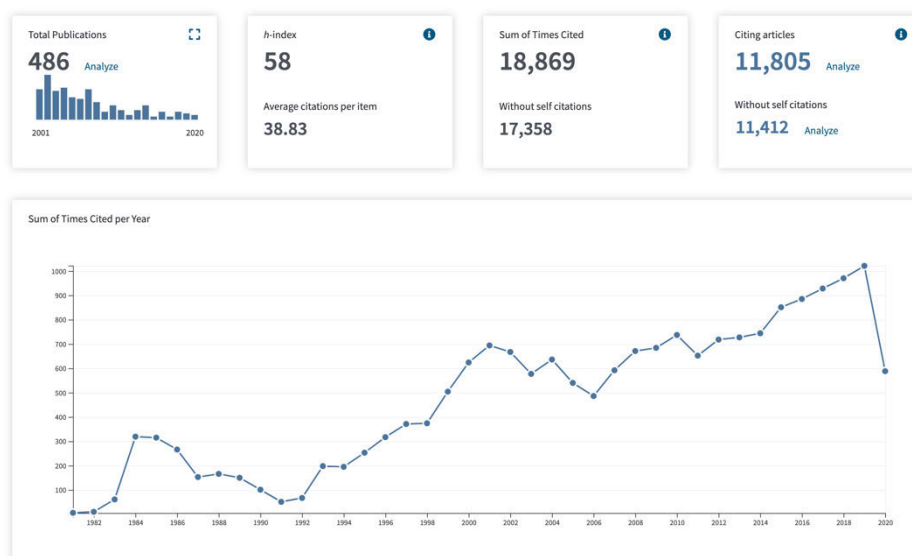
He has given more than 200 invited talks at international scientific conferences and he has been convener and rapporteur at some of the most important conferences in the field.

Since 2014 he regularly delivered speeches at international space conferences and events.

He wrote hundreds of articles for newspapers and blogs, and five books on scientific outreach topics from fundamental physics to space sciences

### Scientific publications

From ISI Web of Science: 486 published papers, with 17.350 citations



137 of his papers are classified as “*well-known*” or higher (see the following IHEP-Inspire table)

## Citations summary

Generated on 2020-08-29

497 papers found, 430 of them citeable (published or arXiv)

Citation summary results	Citeable papers	Published only
<b>Total number of papers analyzed:</b>	<a href="#">430</a>	<a href="#">381</a>
<b>Total number of citations:</b>	33,807	33,580
<b>Average citations per paper:</b>	78.6	88.1
<b>Breakdown of papers by citations:</b>		
Renowned papers (500+)	<a href="#">9</a>	<a href="#">9</a>
Famous papers (250-499)	<a href="#">11</a>	<a href="#">11</a>
Very well-known papers (100-249)	<a href="#">37</a>	<a href="#">37</a>
Well-known papers (50-99)	<a href="#">80</a>	<a href="#">80</a>
Known papers (10-49)	<a href="#">188</a>	<a href="#">181</a>
Less known papers (1-9)	<a href="#">74</a>	<a href="#">52</a>
Unknown papers (0)	<a href="#">31</a>	<a href="#">11</a>
$h_{\text{HEP}}$ index <a href="#">?</a>	79	79

Most PRL papers from the AMS collaborations have been choosed as *Editor Suggestion*.

The list of the most cited papers in the field of cosmic rays in space is provided in the following:

- 1. First Result from the Alpha Magnetic Spectrometer on the International Space Station: Precision Measurement of the Positron Fraction in Primary Cosmic Rays of 0.5-350 GeV**, by AMS Collaboration (M. Aguilar et al.). 2013. 10 pp., Published in Phys.Rev.Lett. 110 (2013) 141102 (*1070 citations*)
- 2. Antiproton Flux, Antiproton-to-Proton Flux Ratio, and Properties of Elementary Particle Fluxes in Primary Cosmic Rays Measured with the Alpha Magnetic Spectrometer on the International Space Station**, by AMS Collaboration (M. Aguilar (Madrid, CIEMAT) et al.). 2016. 10 pp. Published in Phys.Rev.Lett. 117 (2016) no.9, 091103, (*117 citations*)
- 3. Precision Measurement of the Helium Flux in Primary Cosmic Rays of Rigidities 1.9 GV to 3 TV with the Alpha Magnetic Spectrometer on the International Space Station**, by AMS Collaboration (M. Aguilar (Madrid, CIEMAT) et al.). 2015. 9 pp. Published in Phys.Rev.Lett. 115 (2015) no.21, 211101, (*127 citations*)
- 4. Precision Measurement of the Proton Flux in Primary Cosmic Rays from Rigidity 1 GV to 1.8 TV with the Alpha Magnetic Spectrometer on the International Space Station**, by AMS Collaboration (M. Aguilar (Madrid, CIEMAT) et al.). 2015. 9 pp. Published in Phys.Rev.Lett. 114 (2015) 171103, (*266 citations*)
- 5. Precision Measurement of the ( $e^+ + e^-$ ) Flux in Primary Cosmic Rays from 0.5 GeV to 1 TeV with the Alpha Magnetic Spectrometer on the International Space Station**, by AMS Collaboration (M. Aguilar (Madrid, CIEMAT) et al.). 2014. 7 pp. Published in Phys.Rev.Lett. 113 (2014) 221102, (*147 citations*)
- 6. High Statistics Measurement of the Positron Fraction in Primary Cosmic Rays of 0.5–500 GeV with the Alpha Magnetic Spectrometer on the International Space Station**, by AMS Collaboration (L. Accardo (INFN, Perugia) et al.). 2014. 9 pp. Published in Phys.Rev.Lett. 113 (2014) 121101 (*348 citations*)

7. **Electron and Positron Fluxes in Primary Cosmic Rays Measured with the Alpha Magnetic Spectrometer on the International Space Station** , by AMS Collaboration (M. Aguilar (Madrid, CIEMAT) et al.). 2014. 9 pp. Published in Phys.Rev.Lett. 113 (2014) 121102, (*300 citations*)
8. **First Result from the Alpha Magnetic Spectrometer on the International Space Station: Precision Measurement of the Positron Fraction in Primary Cosmic Rays of 0.5–350 GeV**, (*784 citations*), AMS Collaboration (M. Aguilar et al.). 2013. Phys.Rev.Lett. 110 (2013) 14, 141102.
9. **Cosmic-ray positron fraction measurement from 1 to 30-GeV with AMS-01**, Phys.Lett. B646 (2007) 145-154 (*314 citations*), by AMS-01 Collaboration
10. **Measurement of the atmospheric muon spectrum from 20-GeV to 3000-GeV** , by L3 Collaboration (P. Achard et al.). Jul 2004. 34 pp. Published in Phys.Lett. B598 (2004) 15-32, (*197 citations*)
11. **The Alpha Magnetic Spectrometer (AMS) on the International Space Station. I: Results from the test flight on the space shuttle**. Phys.Rep. 366 (2002) 331-405, Erratum-ibid. 380 (2003) 97-98 (*339 citations*), by AMS-01 Collaboration (M. Aguilar et al.).
12. **Cosmic protons** , by AMS Collaboration (J. Alcaraz et al.). 2000, Phys.Lett. B490 (2000) 27-35, (*276 citations*)
13. **Leptons in near earth orbit** , by AMS Collaboration (J. Alcaraz et al.). 2000, Phys.Lett. B484 (2000) 10-22, Erratum-ibid. B495 (2000) 440 (*214 citations*)
14. **Protons in near earth orbit** , by AMS Collaboration (J. Alcaraz et al.). Feb 2000. 19 pp., Phys.Lett. B472 (2000) 215-226 (*137 citations*)
15. **Search for anti-helium in cosmic rays**, by AMS Collaboration (J. Alcaraz et al.). Feb 2000. 18 pp. Phys.Lett. B461 (1999) 387-396 (*143 citations*)
16. **Helium in near Earth orbit**, by AMS Collaboration (J. Alcaraz et al.). Nov 2000. 10 pp. , Published in Phys.Lett. B494 (2000) 193-202 (*127 citations*)
17. **An Antimatter spectrometer in space** , by S.P. Ahlen et al.. 1994. 17 pp. Published in Nucl.Instrum.Meth. A350 (1994) 351-367, (*150 citations*)
18. **The L3 silicon microvertex detector**, by the L3 SMD Collaboration (M. Acciarri et al.). Jul 1994. 42 pp. Nucl.Instrum.Meth. A351 (1994) 300-312 (*294 citations*)

#### **Patents granted:**

1. Patent n. RM2002A000211, Battiston, Alpat, Petasecca, Pontetti, "SISTEMA PER LA MAPPATURA DELLA SENSIBILITA' AI SEE", 2002.
2. Patent n. PCT/IT/2007/000273, Angelantoni, Battiston, Zenobi, "CONCENTRATION PHOTOVOLTAIC SYSTEM AND CONCENTRATION METHOD THEREOF", 2007.
3. Patent n. MI2008A000300, Battiston, "SISTEMA DI INSEGUIMENTO DI SORGENTI D'ONDA", 2008.

#### **International Conferences organized by Roberto Battiston:**

- 1) New Space Economy ExpoForum, 1<sup>st</sup> edition Rome December 10-12<sup>th</sup> 2019
- 2) Particle and fundamental physics in space. 3rd International Conference, SpacePart'06, Beijing, China, April 19-21, 2006. Proceedings: R. Battiston, (ed.), P. Zuccon, (ed.) (Perugia U. & INFN, Perugia) , Ti-Pei Li, (ed.) (BeiHang U.) . Published in Nucl. Phys. B, Proc. Suppl. 166 (2007) 1-319
- 3) Particle and fundamental physics in space. 2nd International Conference, SpacePart'03, Washington, USA, December 10-12, 2003. Proceedings: R. Battiston, (ed.) (Perugia U. & INFN, Perugia) , E. Katsavounidis, K. Scholberg (MIT) , M. Salamon (NASA, Headquarters). Published in Nucl. Phys. B, Proc. Suppl. 134 (2004) 1-231
- 4) Particle and fundamental physics in space. 1st International Conference, SpacePart'02, La Biodola, Italy, May 14-19, 2002. Proceedings: R. Battiston, (ed.) (Perugia U. & INFN, Perugia) , F. Cervelli, (ed.) (INFN, Pisa). Published in Nucl.Phys.Proc.Suppl.113 (2002) 1-361
- 5) Matter, antimatter and dark matter. Trento, Italy, 29-30 Oct 2001. Proceedings: R. Battiston (ed.), B. Bertucci (ed.) Published in Int. J. Mod. Phys. A17 (2002) 1589-1840
- 6) FEE, International Meeting on Front End Electronics for High Resolution Tracking Detector
  - Bergamo, Italy, 2011
  - Montauk, New York, 2009
  - Perugia, Italy 2006
  - Snowmass, Colorado 2003

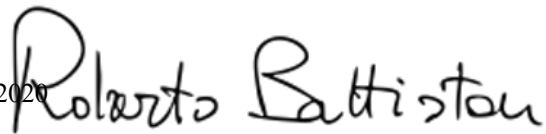
### Books and Conference Proceedings:

He has been editor of : 5 international conference proceedings; a book on Ettore Majorana unpublished papers; the Space Detectors chapter of the Landolt Bornstein:

1. *Ettore Majorana: Unpublished Research Notes on Theoretical Physics*, Series: Fundamental Theories of Physics , **Vol. 159**, Editors: *Esposito, S.; Recami, E.; van der Merwe, A.; Battiston, R.*
2. *Elementary Particles, Detectors for Particles and Radiation*, Landolt Bornstein, Numerical Data and Functional Relationships in Science and Technology, Springer 2011 (II<sup>nd</sup> edition 2020)
3. *Proceedings of the IV International Conference on Particle and Fundamental Physics in Space*, CERN, Geneva, Switzerland, 5–7 November 2012, Nucl. Phys. **B243–244**, Pages 1-258 (October–November 2013). *Editors: Roberto Battiston and Sergio Bertolucci*
4. *SpacePart 2006, Proceedings of the Third International Conference on Particle and Fundamental Physics in Space, Beijing, China, 19-21 Aprile 2006*, Editors: *Roberto Battiston, Tipei Li, Paolo Zuccon*, 2009, LVI, 451 p., Hardcover, ISBN: 978-1-4020-9113-1

5. *SpacePart 2003, Proceedings of the Second International Conference on Particle and Fundamental Physics in Space*, Washington DC, USA, 10-12 Dicembre 2003, *Editors: Roberto Battiston, Eric Katsavounidis, Michael Salamon, Kate Scholberg*
6. *SpacePart 2002, Proceedings of the First International Conference on Particle and Fundamental Physics in Space*, La Biodola, Isola d' Elba, Italy, 14-19 Maggio 2002, *Editors: Roberto Battiston, Franco Cervelli*, 264pp - Pub. date: Aug 2002, Nuclear Physics (Proc. Suppl.) **B113**, December 2002
7. *Matter, Antimatter and Dark Matter*, Proceedings of the Second International Workshop, *Editors: Roberto Battiston, Bruna Bertucci*, 264pp - Pub. date: Aug 2002, ISBN: 978-981-238-118-7, 981-238-118-X

Trento August 25<sup>th</sup> 2020

A handwritten signature in black ink that reads "Roberto Battiston". The signature is written in a cursive, flowing style with a large initial 'R'.



# Curriculum Vitae della dottoressa Roberta SPARVOLI

██████████████████████ cittadinanza italiana.

## **Educazione :**

- 1994-1997 Dottorato di Ricerca in Fisica, Università di Roma La Sapienza", Roma, Italia. Tesi: "NINA: a New Instrument for Nuclear Analysis of primary cosmic rays".
- 1989-1994 Laurea in Fisica, Università di Roma Tor Vergata", Roma, Italia. Tesi: "Studio di un telescopio al silicio per astronomia di alta energia". Voto: 110/110 e lode.
- 1984-1988 Diploma di Maturità Scientifica presso il Liceo Scientifico Pitagora, Roma. Voto: 60/60.

## **Posizioni Occupate :**

- dal 07/01/04 Ricercatore presso l'Università di Roma Tor Vergata", Facoltà di Scienze M.M. F.F. N.N., settore disciplinare FIS/04 Fisica Nucleare e Subnucleare, Roma, Italia.
- 21/05/01-06/01/04 Ricercatore (III livello professionale) a Tempo Determinato con contratto triennale presso l'INFN sezione di Roma2, Università di Roma Tor Vergata".
- 3/01-9/01 Incarico presso il Dipartimento di Fisica dell'Università di Roma Tre, per l'analisi dei dati da satellite nell'ambito del progetto Esperia.
- 7/00-6/01 Assegno di Ricerca presso l'Università di Roma Tor Vergata", Dipartimento di Fisica, Roma, Italia.
- 1/00-8/00 Contratto di collaborazione Coordinata e Continuativa in qualità di esperta di software di missioni spaziali presso l'Università di Roma Tor Vergata", Dipartimento di Fisica, Roma, Italia.
- 7/98-6/00 INFN Post-Doc presso l'Università di Roma Tor Vergata", Roma, Italia.
- 10/94-10/97 Dottorato di Ricerca in Fisica presso l'Università di Roma La Sapienza", Roma, Italia.

## **Premi ricevuti:**

- Premio Laureati in Fisica nell'anno 1997 indetto dalla Società Italiana di Fisica.
- Premio come migliore presentazione orale nella sezione Astrofisica e Fisica Cosmica, vinto al Congresso Nazionale della Società Italiana di Fisica, Pavia 1999.

## **Ruoli di responsabilità:**

- La dottoressa Sparvoli è attualmente Coordinatrice e Responsabile del gruppo WiZard del Dipartimento di Fisica dell'Università di Roma Tor Vergata. Il gruppo conta come partecipanti 16 persone tra staff, contrattisti a Tempo Determinato, assegnisti di ricerca, dottorandi, borsisti e laureandi.
- La dottoressa Sparvoli è Responsabile Nazionale per la sezione di Roma-Tor Vergata della sigla CSES/LIMADOU (CSN2) dell'Istituto Nazionale di Fisica Nucleare dal 2013.
- Roberta Sparvoli è Responsabile Locale dell'esperimento CALET presso il Dipartimento di Fisica dell'Università di Roma Tor Vergata dal 2010, finanziato con un contratto dell'Agenzia Spaziale Italiana ASI.
- La dottoressa Sparvoli è stata Responsabile dell'Unità per l'Università di Roma Tor Vergata del PRIN 2008: Sviluppo di rivelatori innovativi per la fisica delle astroparticelle nello spazio.
- La dottoressa Sparvoli è delegata dell'Università di Roma Tor Vergata presso il Consorzio Interuniversitario per la Fisica Spaziale (CIFS) dal 2014.

- La dottoressa Sparvoli è membra del Consiglio Scientifico del Centro NAST (Nanoscience & Nanotechnology & Instrumentation) presso l'Università degli Studi di Roma Tor Vergata dal 2006.
- La dottoressa Sparvoli è stata membra del Collegio dei Docenti del Dottorato di Ricerca in Fisica presso l'Università degli Studi di Roma Tor Vergata dal 2007 al 2012.
- La dottoressa Sparvoli è stata Responsabile Locale per la sezione di Roma-Tor Vergata presso la Commissione Calcolo e Reti dell'Istituto Nazionale di Fisica Nucleare dal 2008 al 2013.

### **Attività Scientifica :**

Il lavoro di ricerca di Roberta Sparvoli si è realizzato all'interno della collaborazione WiZard, della quale è membra dal 1993 (anno di inizio della tesi di laurea). L'attività scientifica di Roberta Sparvoli si è articolata nei seguenti indirizzi sperimentali:

1. FISICA ASTROPARTICELLARE - RAGGI COSMICI: Ricerca di antimateria e materia esotica nella radiazione cosmica, studio dello spettro di antiprotoni, positroni, protoni, elettroni e nuclei leggeri, misura dei flussi di particelle energetiche dal Sole e della componente anomala ed intrappolata dei raggi cosmici.
  - a) Esperimenti con palloni stratosferici: gli esperimenti MASS, TS93 e CAPRICE;
  - b) Esperimenti con l'uso di satelliti: gli esperimenti NINA, NINA-2 e PAMELA;
2. STUDIO DEGLI EFFETTI DELL'AMBIENTE SPAZIALE SULL'ORGANISMO UMANO: studio dell'origine del fenomeno dei lampi di luce ("light flashes", LF) osservati da astronauti nel corso di missioni spaziali.
  - a) gli esperimenti SilEye 1 e 2 sulla stazione spaziale MIR;
  - b) gli esperimenti SilEye3/ALTEINO, ALTEA, SI-RAD/ALT-CRIS sulla ISS.
3. STUDIO DELLA RADIAZIONE GAMMA COSMICA: simulazione di un telescopio al silicio di raggi gamma.
  - a) attività di tesi di laurea e collaborazione con AGILE e FERMI;
4. PROGETTI ATTUALI: CSES/LIMADOU, CALET, GAMMA-400, PAMELA.

### **Esperienze didattiche :**

- Dall'A.A. 2012/2013 titolare del corso di "Istituzioni di Fisica Nucleare e Subnucleare" presso il Corso di Laurea in Fisica dell'Università degli Studi di Roma Tor Vergata. Corso a scelta per la Laurea Triennale. Corso obbligatorio per la Laurea Magistrale, curriculum "Nucleare e Subnucleare" e "Elettronica e Cibernetica". Totale 6 CFU.
- Dall'A.A. 2008/2009 titolare del corso di "Laboratorio di Informatica" presso il Corso di Laurea in Scienza dei Materiali dell'Università degli Studi di Roma Tor Vergata. Corso obbligatorio per la Laurea Triennale. Totale 6 CFU.
- Dall'A.A. 2005/2006 all' A.A. 2007/2008 titolare del corso di "Elementi di Informatica" presso il Corso di Laurea in Scienza dei Materiali dell'Università degli Studi di Roma Tor Vergata. Corso obbligatorio per la Laurea Triennale. Totale 2 CFU.
- Dall'A.A. 2005/2006 all' A.A. 2007/2008 titolare del corso di "Laboratorio di Informatica 1" presso il Corso di Laurea in Fisica dell'Università degli Studi di Roma Tor Vergata. Corso obbligatorio per la Laurea Triennale. Totale 4 CFU.

### **Resoconto dell'attività bibliografica :**

Alla data del 16.05.2014, secondo il database Scopus la produzione scientifica di Roberta Sparvoli è la seguente: a) Articoli su Rivista = 120; b) Proceedings di Conferenze = 51; c) Libri e Recensioni = 2; d) Editoriali = 1; e) Numero totale di citazioni = 3729.

Alla data del 16.05.2014 Roberta Sparvoli ha un h-index di 25 secondo il database Scopus e secondo il database ISI Web of Science.

## CURRICULUM VITAE: Francesco Nozzoli

### DATI ANAGRAFICI:

francesco.nozzoli@unitn.it

### PRINCIPALI INTERESSI DI RICERCA:

Astroparticle physics, Dark Matter, particle detectors, nuclear physics,  $2\beta$  decay, karst studies, fluid-dynamics.

**POSIZIONE ATTUALE:** Ricercatore TI presso INFN-TIFPA.

### RESPONSABILITA' SCIENTIFICHE:

12/06/2018-oggi: responsabile del progetto Anti Deuteron Helium Detector (ADHD).

01/09/2017-oggi: responsabile locale INFN del gruppo AMS-Trento.

06/04/2018-oggi: CERN team leader per il gruppo AMS-Trento.

2019/2020: HEPD-02 Beam Test and Calibration Manager (progetto Limadou/CSES-II)

2018/2019: coordinatore del gruppo di analisi "Exotica" nella collaborazione EEE.

2015/2018: resp. italiano per il topic "Solar Wind Map" nel progetto Italo-Cinese "Moon Mapping"

### INCARICHI con RESPONSABILITA' di SERVIZIO:

2020: Responsabile Terza missione INFN-TIFPA

2018/2021: RUP INFN-TIFPA per esperimenti CSN2 + alcuni CSN5 NewReflections, GlareX, ...

2018/2019: DEC INFN-TIFPA per i contratti: ABC-TOOLS, RS COMPONENTS, CAEN.

### PARTECIPAZIONE COMITATI SCIENTIFICI, COMMISSIONI e GRUPPI di LAVORO:

- 2018/2020 membro del gruppo di lavoro su Space Weather – Agenzia Spaziale Italiana

- 2018/2019 membro del gruppo di lavoro proponente COMPASS++/AMBER

- 2018/2019 membro del gruppo di lavoro ARCADIA

- 2019/2020 referente di UniTN-INFN per il network PhD internazionale IDPASC (<https://idpasc.lip.pt/>)

- membro del MIUR-REPRISE (Registro di Scientific Experts) per "Fundamental research"

- 10/09/2019 Membro di commissione della selezione pubblica ,231 d.d. 19/08/2019 UniTN

- 04/11/2019 Membro di commissione della selezione pubblica 7(19) Ricercatore presso Centro Fermi

### ORGANIZZAZIONE DI WORKSHOP/CONFERENZE/SCUOLE:

- Young Researcher Meeting 2020 <http://www.iphysnet.com/wp/yrm/events/11yrm/>

- 11/2019 Lecture VIth CNRS thematic School of Astroparticle Physics, St. Michel l'Observatoire (FR)

- 18/12/2018 Workshop: "Italy's Roadmap towards space weather science"

Agenzia Spaziale Italiana, Roma, <https://www.asi.it/it/eventi/workshop/workshop-space-weather-0>

### GRANTS/PROGETTI:

12/06/2018: Grant 20k€ INFN 19593: "Studio di fattibilità di un rivelatore di antideuterio a base di elio gassoso", ADHD (Anti Deuteron Helium Detector).

### PREMI:

2008 "Orso Mario Corbino" - SIF (Società Italiana di Fisica).

2002 "Tito Maiani" - Accademia Nazionale dei Lincei, Rome.

1999 borsa "Enrico Persico" - Accademia Nazionale dei Lincei, Rome.

### **ATTIVITA' come REFEREE:**

- Physical Review D
- European Phys. J
- MDPI: Instruments, Crystals, J-Mult. Scientific, Entropy, Sensors, Universe, Particles, Symmetry.
- International Journal of the Physical Sciences (IJPS)
- Aeronautics and Aerospace Open Access Journal (AAOAJ)

### **PRODUZIONE SCIENTIFICA:**

88 articoli REFERRED, > 30 proceedings di conferenza. H-index 41  
Numero di citazioni totali > 9500

### **ATTIVITA' di TERZA MISSIONE:**

- 2014-oggi: membro della collaborazione EEE (Extreme Energy Events) - Science inside Schools.
- 2012-2016 5 edizioni della "notte europea dei ricercatori" presentando le attività di ricerca presso ASI Science Data Center per lo studio dell'Universo (<https://www.frascatiscienza.it/>)
- 15/05/2018: presentazione di INFN all'evento Pint of Science 2018 (TN).
- 06/2018: tutor TIFPA-INFN per il progetto di Alternanza Scuola Lavoro dell' ITIS Buonarroti (TN).
- 20-21/05/2019: presentazione di INFN all'evento Pint of Science 2019 (TN).
- 18/11/2019: Focus Live @ Trento
- 07/11/2019: International Cosmic Days 2019 @ INFN-TIFPA
- 18/11/2019: Incontro pubblico di Pete Worden al MUSE di Trento "breakthrough-initiatives"
- 03/02/2020-oggi: Responsabile attività di Terza Missione INFN-TIFPA

### **ATTIVITA' DIDATTICA:**

- Attività presso Università di Trento:
  - 10/2020 Co-relatore Laurea Magistrale C. Cernetti "Measurement of Beryllium isotopic composition in Cosmic Rays with the AMS-02 experiment on the International Space Station", UniTN
  - 11/2019 Relatore esterno laurea triennale S. Perciballi "HEPD LYSO Crystal Calibration", UniTN
  - 2020/21 Titolare del corso LM: "Experimental Techniques in Nuclear and Subnuclear Physics", UniTN
  - 2020/21 Tutor Tirocinio P. Richelli: "Misura del vento solare misurato dal satellite lunare Chang'e-1"
  - 2020/21 Tutor Tirocinio A.Tosi: "Sviluppo di un prototipo di rivelatore per Anti-Deuterio"
  - 2020/21 Tutor Tirocinio A. Corradini: "Misura dell'effetto E-W con l'array di telescopi a muoni EEE"
- 2019/2021 Membro del collegio dei docenti della scuola di dottorato UniTN
- Attività presso Università degli Studi di Roma "Tor Vergata":
  - 2010/11 Titolare del corso "Metodologie Sperimentali per la Ricerca di Processi Rari".
  - 2009/10 Titolare del corso "Metodologie Sperimentali per la Ricerca di Processi Rari".
  - dal 2002/03 al 2008/09 Assistente ai corsi "Laboratorio 1 e 2", (titolare: prof. R.Bernabei)

### **CONTRATTI:**

- 01/09/2017: **Ricercatore INFN (Tempo Indeterminato)** (bando INFN 18221/2016).
- 01/09/2016 – 31/08/2017: **Ricercatore TD INFN sez. Roma Tor Vergata**, analisi dati esperimento AMS-02 presso ASI-ASDC (ASI Science Data Center) Roma. Supervisore: Prof. B. Bertucci.
- 01/09/2015 – 31/08/2016: **Docente MIUR con comando INFN sez. Roma Tor Vergata**, analisi dati AMS-02 presso ASI-ASDC (ASI Science Data Center) Roma. Supervisore: Prof. B. Bertucci.
- 01/09/2014 – 31/08/2015: **Ricercatore TD INFN sez. Roma Tor Vergata**, analisi dati esperimento AMS-02 presso ASI-ASDC (ASI Science Data Center) Roma. Supervisore: Prof. B. Bertucci.
- 01/09/2013 – 31/08/2014 Docente di Elettronica (TI) presso ITIS H.Hertz Roma; collaborazione come **Senior Scientist ASI-ASDC** al gruppo di analisi dati AMS-02 presso ASI/ASDC Roma.
- 04/07/2011 – 29/08/2013: **Ricercatore TD INFN sez. PERUGIA**, analisi dati esperimento AMS-02 presso ASI-ASDC (ASI Science Data Center) Roma. Supervisore: Prof. B. Bertucci.
- Ott. 2010 – Sett. 2011 **professore a Contratto dip. Fisica of Università degli Studi di Roma "Tor**

**Vergata**” Corso: “Metodologie Sperimentali per la ricerca di processi rari”.

-15 Ott. 2010 – 22 Dic. 2010: (consulenza) **Analisi Dati di un gradiometro gravitazionale**. AGI (Assist in Gravitation and Instrumentation) s.r.l., (INAF Spin-Off) Roma. Supervisore: Dott. V. Iafolla.

-Ott. 2009 – Sett. 2010 **professore a Contratto dip. Fisica of Università degli Studi di Roma “Tor Vergata”** Corso: “Metodologie Sperimentali per la ricerca di processi rari”.

-1 Apr. 2009 – 30 Sett. 2009: **Assegno di ricerca dip. Fisica of Università degli Studi di Roma “Tor Vergata”**. Supervisore: Prof. R. Bernabei.

-24 Gen. 2005 – 23 Gen. 2009: **Assegno di ricerca dip. Fisica of Università degli Studi di Roma “Tor Vergata”**. Supervisore: Prof. R. Bernabei.

-Nov.2001–Nov2004: **Borsa di Dottorato**: dip. Fisica of Università degli Studi di Roma “Tor Vergata”.

#### **FORMAZIONE:**

-8 Marzo 2005: **PhD. in Fisica** (Università degli Studi di Roma “Tor Vergata”).

Test: “Investigazione sulla Materia Oscura dell’Universo ai Laboratori Nazionali del Gran Sasso: da DAMA/NaI a DAMA/LIBRA”. Supervisore: Prof. R. Bernabei.

-Nov. 2001 - Nov. 2004: Borsa di dottorato (Università degli Studi di Roma “Tor Vergata”).

-14 Maggio 2001: 110/110 **con lode**, Laurea in Fisica (Università degli studi di Roma “Tor Vergata”).

Tesi: “Ricerca di assioni solari presso i Laboratori Nazionali del Gran Sasso”. Sup.: Prof. R. Bernabei.

-Ott. 2000 - Ott. 2001: borsa per laureandi **INFN**.

-96/97 - 99/00: Studente del corso di Laurea in Fisica Università degli Studi di Roma “Tor Vergata”:  
**media degli esami: 29/30.**

-Ago 1996: Diploma di Maturità ITIS “Enrico Fermi” spec. Energia Nucleare, voto finale: 60/60.

-1995: stage di formazione Estiva presso CNR IFA-IFSI (Ist. Fisica Atmosfera-Spazio Interplanetario ).

#### **LINGUE STRANIERE/TECHNICAL/COMPUTER SKILLS:**

Italiano madrelingua; Inglese: B2/C1

OS: Linux/Unix, Windows

Programming Languages: C++, Fortran, Assembly

Data analysis: ROOT (and multivariate analysis with TMVA), MATLAB, PAW, Excel

HEP Simulation: Geant4 Circuit Simulation: PSpice

#### **Francesco Nozzoli CONFERENZE/SEMINARI:**

[C1] 10/2002 Società Italiana di Fisica, Alghero (SS)

Talk: “**Ricerca di Assioni Solari ai Laboratori Nazionali del Gran Sasso**”.

[C2] 09/2003 Società Italiana di Fisica, Parma

Talk: “**Scintillatori Anisotropi per la rivelazione diretta di WIMP**”.

[C3] 06/2004 International Conference on “Frontier Science”, Monte Porzio Catone (RM)

Talk: “**Anisotropic scintillators for particle Dark Matter direct detection**”.

[C4] 09/2004 Società Italiana di Fisica, Brescia

Talk: “**Nuova marcatura per particelle di materia oscura nell’alone galattico**”.

[C5] 05/2005 International Conference “Nuclear Physics in Astrophysics” Debrecen (HU)

Talk: “**From DAMA/NaI to DAMA/LIBRA at LNGS**”.

[C6] 09/2005 International Conference “Topics in Astroparticle and Underground Physics” (TAUP2005) Zaragoza (E) – Sept. 2005. Talk: “**Physics and Astrophysics with Dark Matter Particles**”.

[C7] 09/2005 Società Italiana di Fisica, Catania

Talk: “**Ricerca dell’emissione spontanea di nuclei leggeri in <sup>127</sup>I**”.

[C8] 04/2006 Seminari gruppo teorico, Università degli Studi di Roma “Tor Vergata”, Roma

Seminar: “**Investigating Pseudoscalar and Scalar Dark Matter**”.

- [C9] 05/2006 International conference “Current Problems in Nuclear Physics and Atomic Energy”, Kiev (UA) Talk: “**Searches for rare processes by DAMA at Gran Sasso**”.
- [C10] 07/2006 Workshop “Frontiers in Astroparticle Physics” 11° Summer Institute at LNGS, Assergi (LNGS) Seminar: “**Signals from the Dark Universe: results and perspectives from DAMA**”.
- [C11] 09/2006 Workshop “Astroparticle and Cosmology” at the Galileo Galilei Institute for Theoretical Physics Arcetri (Fi). Talk: “**The DAMA experiment**”.
- [C12] 09/2006 Società Italiana di Fisica, Torino.  
Talk: “**Investigazione di materia oscura bosonica scalare e pseudoscalare con DAMA/Nal**”.
- [C13] 08/2007 13° Lomonosov conference on Elementary Particle Physics, Moscow  
Talk: “**Search for rare processes at Gran Sasso**”.
- [C14] 09/2007 ENTApP meeting “Prospects for the detection of Dark Matter”, Matalascanas (E)  
Talk: “**Detection of Dark Matter and perspectives**”.
- [C15] 09/2007 Società Italiana di Fisica, Pisa  
Talk: “**Effetti elettromagnetici nella rivelazione di particelle di materia oscura**”.
- [C16] 09/2008 Società Italiana di Fisica, Genova  
Talk: “**Investigazione su Materia Oscura leggera**”.
- [C17] 10/2008 International Conference “Theoretical and experimental aspects of the spin-statistics connection and related symmetries”, Talk: “**Searches for non-paulian transitions in highly radiopure Nal(Tl): previous results and perspectives**”.
- [C18] 05/2009 International Conference “Nuclear Physics in Astrophysics-4” Frascati (RM)  
Talk: “**Searches for processes violating the Pauli Exclusion Principle in Sodium and Iodine**”.
- [C19] 07/2009 International Conference “Topics in Astroparticle and Underground Physics” (TAUP), Roma (It), Talk: “**Technical aspects and dark matter searches**”.
- [C20] 09/2009 Società Italiana di Fisica, Bari  
Talk: “**New search for processes violating the Pauli Exclusion Principle in Sodium and Iodine**”.
- [C21] 09/2010 Società Italiana di Fisica, Bologna  
Talk: “**Ricerca di decadimenti doppio beta in  $^{106}\text{Cd}$  con  $^{106}\text{CdWO}_4$** ”.
- [C22] 09/2011 “Frascati Scienza” ESA-ESRIN, Frascati (RM)  
Seminar: “**AMS: il cacciatore di Antimateria**”.
- [C23] 06/2013 ASI Science Data Center, Frascati (RM)  
Seminar: “**AMS02 – Status and first results**”.
- [C24] 12/2014 Conferenza Nazionale del progetto EEE, Erice (TP)  
Seminar: “**Muon decay with EEE**”.
- [C25] 04/2015 XIV IFAE-2015 “Incontri di Fisica delle Alte Energie” Roma (It)  
Talk: “**AMS status and results after four years of operations on the ISS**”.
- [C26] 04/2015 ASI Science Data Center, Roma (It)  
Seminar: “**AMS-02 results after four years of operations on the ISS**”.
- [C27] 05/2015 INFN ROMA2, Roma (It)  
Seminar: “**AMS-02 results after 4 years of operation on ISS**”.
- [C28] 11/2015 III Moon Mapping Project Workshop, Beijing Geophysics University (PRC)  
Talk: “**Charged Cosmic ray interactive database at ASI/ASDC**”.
- [C29] 02/2016 Physics department of Trento University (It)  
Seminar: “**From the laboratory to space: search for Dark Matter and perspectives in Astroparticle Physics, an experimentalist's point of view**”
- [C30] 03/2016 DAMPE collaboration meeting, ASI Science Data Center, Roma (It)  
Seminar: “**Magnetic spectrometers at ASI/ASDC. Analysis efforts and data preservation/dissemination for AMS and PAMELA**”.
- [C31] 06/2016 EEE collaboration meeting, Centro Fermi, Roma  
Talk: “**Multi-trk events in EEE**”.
- [C32] 06/2016 IV Moon Mapping Project Workshop, ASI, Roma  
Talk: “**Solar Wind Ion Detector pre-processing and quality monitor**”.

- [C33] 09/2016 “25<sup>th</sup> European Cosmic Ray Symposium” (ECRS), Torino  
Talk: “**Precision measurement of antiproton to proton ratio with the alpha magnetic spectrometer on the international space station**”
- [C34] 09/2017 Società Italiana di Fisica, Trento  
Invited Talk: “**Six Years of the Alpha Magnetic Spectrometer on the International Space Station**”.
- [C35] 09/2017 Società Italiana di Fisica, Trento  
Talk: “**A balance for Dark Matter bound states**”.
- [C36] 11/07/2018 EEE collaboration meeting.  
Talk: “**Some ideas for EEE analysis**”.
- [C37] 09/2018 7th Roma International Conference on Astroparticle Physics (RICAP 2018), Roma  
Talk: “**Properties of Elementary Particle Fluxes in Primary Cosmic Rays Measured with the Alpha Magnetic Spectrometer on the International Space Station**”.
- [C38] 09/2018 Società Italiana di Fisica, Arcavacata di Rende (CS)  
Talk: “**Futuri rivelatori di anti-deuterio nei raggi cosmici e ricerca di Materia Oscura**”.
- [C39] 09/2018 Società Italiana di Fisica, Arcavacata di Rende (CS)  
Talk: “**Mappa e caratteristiche del vento solare misurato dal satellite lunare Chang'E-1**”.
- [C40] 11/2018 21<sup>st</sup> International workshop on Laser Ranging. Canberra, Australia  
Talk: “**A systematic study of laser ablation for space debris mitigation**”.
- [C41] 03/2019 CSES-Limadou General Meeting 2019, Trento  
Talk: “**Results of Beam Test of 2mm scintillator trigger bars for HEPD-2**”.
- [C42] 03/2019 2<sup>nd</sup> Cosmic-ray Antideuteron Workshop, UCLA, California  
Talk: “**Status of the Anti Deuteron Helium Detector (ADHD) project**”.
- [C43] 09/2019 Società Italiana di Fisica, Gran Sasso Science Institute (AQ)  
Talk: “**Investigazione dei processi di doppio decadimento beta in <sup>146</sup>Nd, <sup>144</sup>Sm e negli altri isotopi finora inesplorati**”.
- [C44] 10/2019 Workshop: “Light Anti-Nuclei as a Probe for New Physics” Lorentz Center, Leiden (NL)  
Talk: “**Perspectives for Anti-Deuteron identification in cosmic rays with an Helium based detector**”.
- [C45] 11/2019 VIth CNRS thematic School of Astroparticle Physics, St. Michel l'Observatoire (FR)  
Lecture: “**Detection of high-energy particles from the Universe: basic concepts, methods and challenges**”

*Il sottoscritto Francesco Nozzoli nato a Roma (RM) il 22/04/1977, consapevole che le dichiarazioni false comportano l'applicazione delle sanzioni penali previste dall'art. 76 del D.P.R. 445/2000, dichiara che le informazioni riportate nel presente curriculum vitae e nei documenti ad esso allegati, corrispondono a verità.*

Trento 17/10/2020



## Francesco Nozzoli Publication LIST:

- [1] "Voltage break down follower avoids hard thermal constraints in a Geiger mode avalanche photodiode". M. Viterbini, S. Nozzoli, M. Poli, A. Adriani, F. Nozzoli, A. Ottaviano, S. Ponzio, **Applied Optics** **35** (1996), 5345.
- [2] "Search for solar axions by Primakoff effect in NaI crystals". R. Bernabei, P. Belli, R. Cerulli, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma, S. Scopel, **Phys. Lett. B** **515** (2001), 6.
- [3] "Results with the DAMA experiment at LNGS". R. Bernabei, M. Amato, P. Belli, F. Cappella, R. Cerulli, C.J. Dai, H.L. He, G. Ignesti, A. Incicchitti, H.H. Kuang, J.M. Ma, F. Montecchia, F. Nozzoli, D. Prosperi, **Nucl. Phys. B(Proc. Supp.)** **109B** (2002) 329.
- [4] "Results with the DAMA/NaI(Tl) experiment at LNGS". R. Bernabei, M. Amato, P. Belli, F. Cappella, R. Cerulli, C.J. Dai, H.L. He, G. Ignesti, A. Incicchitti, H.H. Kuang, J.M. Ma, F. Montecchia, F. Nozzoli, D. Prosperi, **Nucl. Phys. B(Proc. Supp.)** **110** (2002) 61.
- [5] "Search for  $\beta$  and  $\beta\beta$  decays in  $^{48}\text{Ca}$ ". R. Bernabei, P. Belli, F. Cappella, R. Cerulli, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, C.J. Dai, **Nucl. Phys. A** **705** (2002), 29.
- [6] "Further results on the WIMP annual modulation signature by DAMA/NaI". R. Bernabei, P. Belli, F. Cappella, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **JHEP** (2003) PRHEP-AHEP 2003/063.
- [7] "Searching for the dark Universe by the DAMA experiment". R. Bernabei, M. Amato, P. Belli, F. Cappella, R. Cerulli, C.J. Dai, G. Ignesti, A. Incicchitti, H.H. Kuang, J.M. Ma, F. Montecchia, F. Nozzoli, Z.P. Ye, D. Prosperi, **Nucl. Phys. A** **719** (2003) 257c.
- [8] "Anisotropic scintillators for WIMP direct detection: revisited". R. Bernabei, P. Belli, F. Nozzoli, A. Incicchitti, **Eur. Phys. J. C** **28** (2003) 203.
- [9] "WIMP search by DAMA experiment at Gran Sasso". R. Bernabei, M. Amato, P. Belli, F. Cappella, R. Cerulli, C.J. Dai, H.L. He, G. Ignesti, A. Incicchitti, H.H. Wang, J.M. Ma, F. Montecchia, F. Nozzoli, D. Prosperi, **Nucl. Phys. B (Proc. Suppl)** **124** (2003) 181.
- [10] "Dark Matter search". R. Bernabei, P. Belli, F. Cappella, R. Cerulli, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **Riv. N. Cim.** **26 n.1** (2003) 1-73.
- [11] "Performances of a  $\text{BaF}_2$  crystal scintillator and its application to the search for  $\beta\beta$  decay modes in  $^{130}\text{Ba}$ ". R. Cerulli, P. Belli, R. Bernabei, F. Cappella, F. Nozzoli, F. Montecchia, A. d'Angelo, A. Incicchitti, D. Prosperi, C.J. Dai, **Nucl. Instr. & Meth. A** **525** (2004), 535.
- [12] "Dark Matter particles in the galactic halo: results and implications from DAMA/NaI". R. Bernabei, P. Belli, F. Cappella, R. Cerulli, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **Int. J. Mod. Phys. D** **13** (2004) 2127.
- [13] "A search for spontaneous transition of nuclei to a superdense state". R. Bernabei, P. Belli, F. Cappella, F. Montecchia, F. Nozzoli, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **Eur. Phys. J. A** **23** (2005) 7.
- [14] "A search for spontaneous emission of heavy cluster in the  $^{127}\text{I}$  nuclide". R. Bernabei, P. Belli, F. Cappella, F. Montecchia, F. Nozzoli, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma, Z.P. Ye, V.I. Tretyak, **Eur. Phys. J. A** **24** (2005) 51.
- [15] "Further results on annual modulation signature by DAMA/NaI". R. Bernabei, P. Belli, F. Cappella, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **Nucl. Phys. B (Proc. Suppl.)** **138** (2005) 45.
- [16] "Prospects for DAMA/LIBRA and beyond". R. Bernabei, P. Belli, F. Cappella, F. Montecchia, F. Nozzoli, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **Nucl. Phys. B (Proc. Suppl.)** **138** (2005) 48.
- [17] "Signature for signals from the Dark Universe". R. Bernabei, P. Belli, F. Cappella, F. Montecchia, F. Nozzoli, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.H. Kuang, J.M. Ma, Z.P. Ye, **Nuovo Cim.** **120 B** (2005) 677.
- [18] "Performances and potentialities of a  $\text{LaCl}_3:\text{Ce}$  scintillator". R. Bernabei, P. Belli, F. Montecchia, F.



Nozzoli, A. d'Angelo, F. Cappella, A. Incicchitti, D. Prosperi, S. Castellano, R. Cerulli, C.J. Dai, V.I. Tretyak, **Nucl. Inst. & Meth. A555 (2005) 270.**

[19] "Search for rare processes with DAMA/LXe experiment at Gran Sasso". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, V.Yu. Denisov, V.I. Tretyak, **Eur. Phys. J. A27 s01 (2006) 35.**

[20] "From DAMA/NaI to DAMA/LIBRA at LNGS". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma, Z.P. Ye, **Eur. Phys. J. A27 s01 (2006) 57.**

[21] "Investigating pseudoscalar and scalar dark matter". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma, Z.P. Ye, **Int. J. Mod. Phys. A21 (2006) 1445.**

[22] "Investigating halo substructure with annual modulation". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma, X.D. Sheng, Z.P. Ye, M. Martinez, G. Giuffrida, **Eur. Phys. J. C 47 (2006) 263.**

[23] "Highlights of DAMA". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma and Z.P. Ye, **Journal of Phys. CS. 39 (2006) 82.**

[24] "Physics and astrophysics with dark matter particles". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma and Z.P. Ye, **Journal of Phys. CS. 39 (2006) 148.**

[25] "Particle Dark Matter: from DAMA/NaI to DAMA/LIBRA". R. Bernabei, P. Belli, F. Montecchia, F. Nozzoli, F. Cappella, A. d'Angelo, A. Incicchitti, D. Prosperi, R. Cerulli, C.J. Dai, H.L. He, H.H. Kuang, J.M. Ma, Z.P. Ye, **Physics of Atomic Nuclei 69 (2006) 2056.**

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