

# Europass Curriculum Vitae



## Personal information

Surname(s) / First name(s)

Email(s)

Nationality(-ies)

Date of birth

Gender

Scopus ID

ORCID

**Rozza, Davide**

davide.rozza@cern.ch; davide.rozza@mib.infn.it; davide.rozza@unimib.it

Italian

July 21<sup>st</sup>, 1987

Male

55084788000

0000-0002-7378-6353

## Work experience

Dates

Occupation or position held

Main activities and responsibilities

**January 2016 to date**

Temporary Research Fellow

- Magnetosphere analysis performed using different magnetic field configurations [B6,C22]. Preliminary creation of the GeoMagSphere website (<http://www.geomagsphere.org/>) using Joomla platform.
- Cosmic ray analysis with the AMS-02 data: proton analysis inside magnetosphere, determination of the rigidity cut-off for negative particles and transmission function extrapolation to distinguish between primary and secondary cosmic rays. The determination of the cut-off was used in particular periods, like during solar events (solar flares and CMEs), as presented in [B7,D7-8] and in the bachelor thesis [F1,F3] in which I was Co-Advisor. Particular attention was devoted to particles trapped in radiation belts [D9,F2].
- Radiation environment and damage: NIEL and Displacement Damage analysis on materials as solar cells [C20]. Determination of the absorbed dose imparted by neutrons to matter using the damage function determined by NJOY, the nuclear data processing code developed at Los Alamos National Laboratory.
- Contributions to [A13,A16,A17,C18-19], articles regarding the HelMod-GALPROP coupling, two different numerical codes for cosmic ray propagation in heliosphere [C21] and in the interstellar medium respectively. Determination of the electron-positron excess above tens of GeV.
- Acquisition and data processing in the AMS-02 control room at CERN in the LEAD (monitoring of the AMS operations concerning different subsystems related to: AMS detector, ISS, NASA communication, data transmission, POCC, etc.) and DATA (monitoring the status of data transfer from AMS to: HOSC-NASA, AMS laptop, CERN) positions. Attendance to AMS-02 general and internal meetings allowed to give a contribution, regarding the magnetosphere environment, to the publications [A11,A12,A14,A15].

Name and address of employer

Supervisor

Type of business or sector

Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano, Italy

Prof. Massimo Gervasi (Università degli studi Milano-Bicocca)

Space and Astroparticle Physics

<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Supervisor</p> <p>Type of business or sector</p>	<p><b>Academic year 2017/2018</b></p> <p>Contract work</p> <p>Teaching Assistant (tutor), course of Physics II exercises (electromagnetism and optics) to physics students (second year).</p> <p>Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano, Italy</p> <p>Giuseppe Gorini (Università degli studi Milano-Bicocca)</p> <p>Teaching Assistant (tutor)</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Supervisor</p> <p>Type of business or sector</p>	<p><b>Academic year 2017/2018</b></p> <p>Contract work</p> <p>Teaching Assistant, course of Physics II exercises (electromagnetism and optics) to chemistry students (second year).</p> <p>Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano, Italy</p> <p>Massimo Nocente (Università degli studi Milano-Bicocca)</p> <p>Teaching Assistant</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p>	<p><b>March 2015 - December 2015</b></p> <p>Temporary Research Fellow</p> <ul style="list-style-type: none"> <li>- The AMS-02 proton backtracing, inside magnetosphere, led to determine the rigidity cut-off to distinguish among primary, secondary and trapped cosmic rays. The determination of this cut-off, considering the time evolution of the magnetosphere with respect to the solar activity, is now available in the AMS official software [C15,C17,D6]. This work was used for the AMS official publication of the correct proton spectrum at energies below few tens of GV (see e.g., [A7]).</li> <li>- Regarding the pulsar wind nebulae contribution to the primary electron and positron cosmic ray fluxes, a spherical harmonics analysis was presented [B5] focusing the attention on the dipole component divided into its three terms in galactic coordinates. The predictions are inside <math>2\sigma</math> from the AMS-02 data [C14].</li> <li>- A marginal work regards the comparison between forward and backward approach in the determination of the cosmic ray solar modulation [A10,C16].</li> </ul>
<p>Name and address of employer</p> <p>Supervisor</p> <p>Type of business or sector</p>	<p>Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano, Italy</p> <p>Prof. Massimo Gervasi (Università degli studi Milano-Bicocca)</p> <p>Space and Astroparticle Physics</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Supervisor</p> <p>Type of business or sector</p>	<p><b>October 2015, March and May 2016</b></p> <p>Contract work</p> <p>I have tutored students during visits at the department of physics in relation to laboratories and high school students during experiments in physics at the educational LABEX laboratory. Equipment management of the educational LABEX laboratory was also kept into account.</p> <p>Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano, Italy</p> <p>Prof. Giuseppe Chirico (Università degli studi Milano-Bicocca)</p> <p>Tutor activity</p>
<p>Dates</p> <p>Occupation or position held</p>	<p><b>January 2013 - December 2013</b></p> <p>Associate with Subsistence</p>

Main activities and responsibilities

- During the year at CERN, one of the main topics regards the monitoring of the health status of the AMS-02 experiment at DATA position at the AMS-02 Payload Operation Control Center (AMS-POCC) at CERN checking the continuous flow of data from the experiment to the International Space Station, from the station to the AMS machines at NASA and from NASA to CERN. Correlated activities as training for new shifters and developing new procedures to compare data on the ground with those recorded on a disc on the Space Station, extending and improving the total quantity data of AMS-02, were also done.
- Data analysis of electrons and positrons inside and outside magnetosphere for cosmic ray anisotropy was studied using the back-tracing technique. The description of the magnetosphere is important when we are looking for signal for a relatively close source, as Vela-X. An anisotropic signal in the arrival cosmic ray directions could be detected with a precise AMS-02 analysis. Since AMS-02 is located inside the magnetosphere, the reconstruction of the particle trajectory up to the magnetopause is needed. The back-tracing can distinguish among cosmic rays produced outside the magnetosphere and the ones generated or trapped inside. These information were used for the AMS-02 internal note [E1].

Name and address of employer

CERN, European Organization for Nuclear Research, CH-1211 Geneva 23, Switzerland & INFN Milano-Bicocca, piazza della scienza,3 20100 Milano

Supervisors

Prof. Samuel Ting (AMS-02 Spokesman CERN); Dott. Pier Giorgio Rancoita (Research Manager INFN Milano Bicocca)

Type of business or sector

Experimental physics

## Education and training

Dates  
Title of qualification awarded  
Principal subjects/Occupational skills covered

**November 2011 - June 2015**

Ph.D. in Physics

- Inside the AMS-02 Milano-Bicocca group, some analysis were done concerning the influence of the solar effects on the cosmic ray fluxes. Interplanetary magnetic field, its polarity and latitudinal dependence were kept into account to determine the solar modulation of cosmic particles coming from the outer heliosphere. Referred articles as [A1,A2] were published and several proceedings were presented in international conferences as in the following cases [B1,C2,C3,C6-8,C11-13].
- An optimization of the cosmic ray propagation parameters (using GALPROP) was done to explain the AMS-02 fluxes published according to other experimental data e.g., the ratios between fluxes of particles produced in the interstellar medium and the ones produced in known sources. Discrepancies between theoretical LIS's and the experimental data were explained as due to solar modulation for energy below few tens of GeV and as primary contributions for higher energies. A model of electron-positron pairs production from astrophysical sources and propagation of  $e^{\pm}$  up to Earth was proposed. Sources as Pulsar Wind Nebulae may be responsible for the electron and positron excess; a prove of this statement is that the wide photon spectra from radio to gamma energy observed at the source could be explained with synchrotron and inverse Compton radiation produced by electrons and positrons inside the nebula. The proposed model, built on the observed photon emission of these objects, leads to consider Vela-X as the main candidate for the interpretation of electron and positron excess above 100 GeV. At 1 TeV, the flux expected with our models is in agreement within the AMS-02 uncertainties. This work was presented at different stages in international conferences [B2,B4,C4,C9] and the final results in the referred article [A9].
- Cosmic rays approaching the Earth location are affected by the presence of the geomagnetic field. Comparisons among magnetosphere models and experimental data led to consider an asymmetric magnetic field as the best description of the environment. The Tsyganenko external magnetic field was kept into account in addition to the symmetric IGRF one. Using a tool developed inside the AMS-02 Milano-Bicocca group, the so called back-tracing technique, a data analysis of backtraced particles (AMS-02 particle directions reconstructed up to the magnetosphere border) was performed for different studies: determination of the rigidity cut-off for AMS-02 protons, arrival directions for anisotropy studies in cosmic rays and short term solar effects (e.g., SEP, Forbush, CME) on cosmic rays. Besides the conference proceedings [B3,C5,C10], the importance of this analysis was welcomed by the AMS-02 collaboration in internal meetings before [D1-5] and inside collaboration articles later ([A3-8] regarding cosmic ray anisotropy and low energy analysis affected by the magnetosphere).
- Some months were spent in the AMS control room at CERN as DATA shifter, checking and improving the procedures to correct and merge scientific data corrupted during the transmission from space to ground.

Name and type of organization providing education and training

Università degli studi dell'Insubria - Via Valleggio, 11 - 22100 Como, Italy

Thesis title

Astrophysical sources for the observed electron and positron excess at high energy with AMS-02 experiment

Supervisors

Prof. Aldo Treves (Università degli studi dell'Insubria); Dott. Pier Giorgio Rancoita (Research Manager INFN Milano Bicocca)

Dates

**November 2009 - October 2011**

Title of qualification awarded

Master Degree in Physics

Principal subjects/Occupational skills covered	Curriculum - Physics of the fundamental interactions: particle physics, laboratory of nuclear and particle physics, experimental methods in high energy physics, radiation detectors, radiative processes, theoretical physics, general relativity
Name and type of organization providing education and training	Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano - tel. 02 6448 1, Italy
Thesis title	Study of galactic electrons and positrons with the AMS-02 spectrometer
Dissertation	Introduced in the AMS-02 collaboration, I have done an analysis of the AMS-02 data selecting electrons and positrons for the positron fraction evaluation indicating an unexplained amount of positrons with respect to the predicted models. The analysis was performed on Monte Carlo data with AMS-Root software. The preliminary analysis, on flight data, was in agreement with the PAMELA data. A not negligible part of the thesis was dedicated to describe all the energy loss mechanisms of these particles during their travel into the Galaxy (analysis appeared in the conference proceeding [C1]).
Supervisors	Prof. Massimo Gervasi (Università degli studi Milano-Bicocca); Dott. Pier Giorgio Rancoita (Research Manager INFN Milano Bicocca); Dott. Davide Grandi (Università degli studi Milano-Bicocca)
Vote	110/110 cum laude
Dates	<b>September 2006 - December 2009</b>
Title of qualification awarded	Bachelor Degree in Physics
Principal subjects/Occupational skills covered	Mathematical analysis and mathematics for physics, general physics, laboratory of computer science, particle physics, laboratory of nuclear and particle physics, quantum mechanics, special relativity
Name and type of organization providing education and training	Università degli studi Milano-Bicocca - Piazza dell'Ateneo Nuovo, 1 - 20126, Milano - tel. 02 6448 1, Italy
Thesis title	AMS-02 and the positron excess in cosmic rays
Dissertation	Interpretation of the ratio between the positron flux and the electron plus positron flux (positron fraction in cosmic rays), obtained with the PAMELA experiment, using astrophysical sources not kept into account by the theory. Predictions were worked out for the AMS-02 experiment.
Supervisors	Prof. Massimo Gervasi (Università degli studi Milano-Bicocca); Dott. Pier Giorgio Rancoita (Research Manager INFN Milano Bicocca); Dott. Davide Grandi (Università degli studi Milano-Bicocca)
Vote	106/110
Dates	<b>September 2001 - July 2006</b>
Title of qualification awarded	Scientific high school degree
Principal subjects/Occupational skills covered	Grammar School Science and Technology Course Diploma - Physics, chemistry, biology and computer programming studies
Name and type of organization providing education and training	Istituto di Istruzione Secondaria Superiore Statale G. L. Lagrange - Via A. Litta Modignani, 65 - 20161, Milano, Italy
Vote	96/100

## Personal skills and competences

Mother tongue(s)

Other language(s)

*Self-assessment  
European level<sup>(\*)</sup>*

**English**

## Italian

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
B1 Independent user	B1 Independent user	B1 Independent user	B1 Independent user	B1 Independent user

<sup>(\*)</sup> Common European Framework of Reference (CEF) level

Computer skills and competences	Good knowledge in operative system like Windows and Linux (specially Ubuntu) and in software as Microsoft Office Package, Latex. I'm using programming languages as C/C++, CERN-ROOT in physics environments. Basic knowledge of HTML, OriginLab, shell scripting (bash). The competences, acquired during high school and university, allow me to learn quickly new programming languages or other computer programs.
Technical skills and competences	Physical, chemical and biological experimental techniques were acquired during high school and university. Good familiarity with laboratory instruments. I learned how to carry out experiments with accuracy, analyse the results and draw conclusions. This gave me also valuable experience in presentation techniques adapting levels and methods used to the different kind of people, from children to adults. During the university degrees, I learnt mathematical techniques in order to solve real-world physical problems.
Social skills and competences	Good competence to work in a team. This skill was acquired mainly as volunteering in oratorio, where the teamwork and cooperation are fundamental. Laboratory work was part of school and university courses and gave me the experience of work with others in a group. The work within the AMS-02 collaboration expanded my skill within an international environment. I am able to interact with children and guys in educational environments; this skill was improved during time spent in university laboratories, teaching and showing to high school students physical phenomena. I followed students during their bachelor thesis in Physics as Co-Advisor and I participated to outreach events in high schools as well as in public events like MeetMeTonight ("Notte dei ricercatori").
Driving licence(s)	B (common cars).

### **Annexes**

List of Publications

# List of Publications

## Referred Articles

- A1 P. Bobik, M. J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, D. Grandi, K. Kudela, S. Pensotti, P. G. Rancoita, D. Rozza, and M. Tacconi.  
**Effects of solar modulation on the cosmic ray positron fraction.**  
*Advances in Space Research*, 49(11):1587 – 1592, 2012.  
Advances in theory and observation of solar system dynamics - I
- A2 P. Bobik, G. Boella, M. J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, D. Grandi, K. Kudela, S. Pensotti, P. G. Rancoita, D. Rozza, and M. Tacconi.  
**Latitudinal Dependence of Cosmic Rays Modulation at 1 AU and Interplanetary Magnetic Field Polar Correction.**  
*Advances in Astronomy*, 2013, 2013
- A3 M. Aguilar, ..., D. Rozza, et al.  
**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.**  
*Phys. Rev. Lett.*, 110:141102, Apr 2013
- A4 L. Accardo, ..., D. Rozza, et al.  
**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.**  
*Phys. Rev. Lett.*, 113:121101, Sep 2014
- A5 M. Aguilar, ..., D. Rozza, et al.  
**Electron and Positron Fluxes in Primary Cosmic Rays Measured with the Alpha Magnetic Spectrometer on the International Space Station.**  
*Phys. Rev. Lett.*, 113:121102, Sep 2014
- A6 M. Aguilar, ..., D. Rozza, et al.  
**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.**  
*Phys. Rev. Lett.*, 113:221102, Nov 2014
- A7 M. Aguilar, ..., D. Rozza, et al.  
**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.**  
*Phys. Rev. Lett.*, 114:171103, Apr 2015
- A8 M. Aguilar, ..., D. Rozza, et al.  
**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.**  
*Phys. Rev. Lett.*, 115:211101, Nov 2015
- A9 S. Della Torre, M. Gervasi, P.G. Rancoita, D. Rozza, and A. Treves.  
**Pulsar Wind Nebulae as a source of the observed electron and positron excess at high energy: The case of Vela-X.**  
*Journal of High Energy Astrophysics*, 8:27 – 34, 2015
- A10 P. Bobik, M. J. Boschini, S. Della Torre, M. Gervasi, D. Grandi, G. La Vacca, S. Pensotti, M. Putis, P. G. Rancoita, D. Rozza, M. Tacconi, and M. Zannoni.  
**On the forward-backward-in-time approach for Monte Carlo solution of Parker's transport equation: One-dimensional case.**  
*Journal of Geophysical Research: Space Physics*, 121(5):3920–3930, 2016.  
2015JA022237

A11

A12  
A13  
A14  
A15  
A16  
A17

## Contributions at International Conference

- B1 **The Helmod simulation code for Solar modulation with charge-sign dependence** (Poster) 23<sup>rd</sup> European Cosmic Ray Symposium (ECRS-2012), July 3-7 2012, Moscow, Russia (<http://ecrs2012.sinp.msu.ru/>)
- B2 **On the Contribution of Pulsars to the Positron Fraction in Cosmic Rays** (Poster) 33<sup>rd</sup> International Cosmic Ray Conference (ICRC-2013), July 2-9 2013 in Rio de Janeiro, Brazil (<http://www.cbpf.br/~icrc2013/index.html>), published on arXiv:1307.5197
- B3 **Geomagnetic Backtracing: A comparison of Tsyganenko 1996 and 2005 External Field models with AMS-02 data** (Poster) 33<sup>rd</sup> International Cosmic Ray Conference (ICRC-2013), July 2-9 2013 in Rio de Janeiro, Brazil (<http://www.cbpf.br/~icrc2013/index.html>), published on arXiv:1307.5192
- B4 **Possible Contribution to Electron and Positron Fluxes from Pulsars and their Nebulae** (Talk) 14<sup>th</sup> ICATPP Conference on Astroparticle, Particle, Space Physics and Detectors for Physics Applications, September 23-27 2013, Villa Olmo, Como, Italy (<http://villaolmo.mib.infn.it/home>), published on arXiv:1312.3483
- B5 **Vela-X as main contributor to the electron and positron spectra for energy above 100 GeV** (Poster) 34<sup>rd</sup> International Cosmic Ray Conference (ICRC-2015), July 30 - August 6 2015 in The Hague, The Netherlands (<http://icrc2015.nl/>)
- B6 **Comparison And Time Evolution Of The Geomagnetic Cutoff At The ISS Position: Internal Vs External Earth Magnetic Field Models** (Talk) *Space Weather of the Heliosphere: Processes and Forecasts, IAU Symposium 335*, July 17-21, 2017, University of Exeter, UK (<http://blogs.exeter.ac.uk/iaus335/>)
- B7 **GeoMagSphere Model Applied During Solar Events: A Study Of Cosmic Rays Detector From The International Space Station** (Poster) *Space Weather of the Heliosphere: Processes and Forecasts, IAU Symposium 335*, July 17-21, 2017, University of Exeter, UK (<http://blogs.exeter.ac.uk/iaus335/>)

## Conference Proceedings

- C1 P. Bobik, G. Boella, M. J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, D. Grandi, M. Elmo, K. Kudela, E. Memola, S. Pensotti, P. G. Rancoita, D. Rozza, and M. Tacconi.  
**Energy loss for electrons in the Heliosphere and Local Interstellar Spectrum for Solar Modulation.**  
In *Proceedings of the 12<sup>th</sup> ICATPP Conference on Cosmic Rays for Particle and Astroparticle Physics, Villa Olmo (Como, Italy)*, volume 6, pages 482–489, 7–8 October 2010
- C2 P. Bobik, M. J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, D. Grandi, K. Kudela, F. Noventa, S. Pensotti, P. G. Rancoita, and D. Rozza.  
**Heliosphere Dimension and Cosmic Ray Modulation.**  
In *Proceedings of the 13<sup>th</sup> ICATPP Conference on Astroparticle, Particle, Space Physics and Detectors for Physics Applications, Villa Olmo (Como, Italy)*, volume 7, pages 249–257, 3–7 October, 2011
- C3 P. Bobik, M. J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, D. Grandi, K. Kudela, F. Noventa, S. Pensotti, P. G. Rancoita, D. Rozza, and M. Tacconi.  
**A Monte Carlo study for 2-D Heliospheric modulation effects.**  
In *Talk at 23<sup>rd</sup> European Cosmic Ray Symposium (ECRS-2012), Moscow, Russia*, 3–7 July, 2012
- C4 S. Della Torre, M. Gervasi, P.G. Rancoita, D. Rozza, and A. Treves.  
**On the Contribution of Pulsars to the Positron Fraction in Cosmic Rays.**  
In *Proceedings of the 33<sup>rd</sup> International Cosmic Ray Conference (ICRC2013), July 2-9 2013 (Rio de Janeiro, Brazil)*, arXiv: 1307.5197, 2013



- C5 M.J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, D. Grandi, et al.  
**Geomagnetic Backtracing: A comparison of Tsyganenko 1996 and 2005 External Field models with AMS-02 data.**  
 In *Proceedings of the 33<sup>rd</sup> International Cosmic Ray Conference (ICRC2013), July 2-9 2013 (Rio de Janeiro, Brazil)*, arXiv: 1307.5192, 2013
- C6 P. Bobik, G. Boella, M.J. Boschini, S. Della Torre, M. Gervasi, et al.  
**Cosmic Ray Modulation studied with HelMod Monte Carlo tool and comparison with Ulysses Fast Scan Data during consecutive Solar Minima.**  
 In *Proceedings of the 33<sup>rd</sup> International Cosmic Ray Conference (ICRC2013), July 2-9 2013 (Rio de Janeiro, Brazil)*, arXiv: 1307.5199, 2013
- C7 P. Bobik, M.J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, et al.  
**GeoMag and HelMod webmodels version for magnetosphere and heliosphere transport of cosmic rays.**  
 In *Proceedings of the 33<sup>rd</sup> International Cosmic Ray Conference (ICRC2013), July 2-9 2013 (Rio de Janeiro, Brazil)*, arXiv: 1307.5196, 2013
- C8 P. Bobik, M.J. Boschini, C. Consolandi, S. Della Torre, M. Gervasi, et al.  
**Suprathermal particle addition to solar wind pressure: possible influence on magnetospheric transmissivity of low energy cosmic rays?**  
 In *Proceedings of the 33<sup>rd</sup> International Cosmic Ray Conference (ICRC2013), July 2-9 2013 (Rio de Janeiro, Brazil)*, arXiv: 1307.5195, 2013
- C9 S Della Torre, M Gervasi, PG Rancoita, D Rozza, and A Treves.  
**Possible Contribution to Electron and Positron Fluxes from Pulsars and their Nebulae.**  
 In *Proceedings of the 14<sup>th</sup> ICATPP Conference, Villa Olmo 23-27 September 2013, ArXiv e-prints: 1312.3483*, 2013
- C10 P Bobik, M.J. Boschini, S Della Torre, M Gervasi, D Grandi, K Kudela, G La Vacca, M Mallamaci, S Pensotti, P.G. Rancoita, D Rozza, and M Tacconi.  
**Cosmic Rays in the Earth Magnetosphere: the importance of the External Field models in trajectory reconstruction with AMS-02 data.**  
 In *Proceedings of the 14<sup>th</sup> ICATPP Conference, Villa Olmo 23-27 September 2013*, 2013
- C11 P Bobik, M.J. Boschini, S Della Torre, M Gervasi, D Grandi, K Kudela, G La Vacca, M Mallamaci, S Pensotti, P.G. Rancoita, D Rozza, and M Tacconi.  
**Solar Modulation along last solar minimum.**  
 In *Proceedings of the 14<sup>th</sup> ICATPP Conference, Villa Olmo 23-27 September 2013*, 2013
- C12 P. Bobik, M.J. Boschini, S. Della Torre, M. Gervasi, D. Grandi, K. Kudela, G. La Vacca, M. Mallamaci, S. Pensotti, M. Putis, , P.G. Rancoita, D. Rozza, and M. Tacconi.  
**Transport of cosmic rays in magnetosphere and heliosphere: GeoMag and HelMod webmodels.**  
 In *Proceedings of the 14<sup>th</sup> ICATPP Conference, Villa Olmo 23-27 September 2013*, 2013
- C13 P Bobik, M.J. Boschini, S Della Torre, M Gervasi, D Grandi, K Kudela, G La Vacca, M Mallamaci, S Pensotti, P.G. Rancoita, D Rozza, and M Tacconi.  
**Evaluation of energetic proton pressure during solar events and possible effects on the Magnetosphere.**  
 In *Proceedings of the 14<sup>th</sup> ICATPP Conference, Villa Olmo 23-27 September 2013*, 2013
- C14 D. Rozza, S. Della Torre, M. Gervasi, P.G. Rancoita, and A. Treves.  
**Vela-X as main contributor to the electron and positron spectra for energy above 100 GeV.**  
 In *Proceedings of the 34<sup>th</sup> International Cosmic Ray Conference (ICRC2015), July 30 - August 6, 2015 (The Hague, The Netherlands)*, 2015
- C15 D. Grandi, B. Bertucci, M.J. Boschini, M. Crispoltoni, S. Della Torre, F. Donnini, M. Duranti, D. D'urso, E. Fiandrini, M. Gervasi, M. Graziani, G. La Vacca, F. Nozzoli, S. Pensotti, C. Pizzolotto, P.G. Rancoita, D. Rozza, M. Tacconi, V. Vitale, and M. Zannoni.  
**Trajectory reconstruction in the Earth Magnetosphere using TS05 model and evaluation of geomagnetic cutoff in AMS-02 data.**  
 In *Proceedings of the 34<sup>th</sup> International Cosmic Ray Conference (ICRC2015), July 30 - August 6, 2015 (The Hague, The Netherlands)*, 2015

C16 S. Della Torre, P Bobik, M.J. Boschini, M. Gervasi, D Grandi, G. La Vacca, S. Pensotti, M. Putis, P.G. Rancoita, D. Rozza, M. Tacconi, and M. Zannoni.

**Cosmic Rays Propagation with HelMod: Difference between forward-in-time and backward-in-time approaches.**

*In Proceedings of the 34<sup>th</sup> International Cosmic Ray Conference (ICRC2015), July 30 - August 6, 2015 (The Hague, The Netherlands), 2015*

C17 E. Fiandrini, B. Bertucci, M.J. Boschini, M. Crispolti, S. Della Torre, F. Donnini, M. Duranti, D. D'urso, M. Gervasi, D. Grandi, M. Graziani, G. La Vacca, F. Nozzoli, S. Pensotti, C. Pizzolotto, P.G. Rancoita, D. Rozza, M. Tacconi, V. Vitale, and M. Zannoni.

**Time dependent Geomagnetic Cutoff estimation along the ISS orbit.**

*In Proceedings of the 34<sup>th</sup> International Cosmic Ray Conference (ICRC2015), July 30 - August 6, 2015 (The Hague, The Netherlands), 2015*

C18

C19

C20

C21

C22

## Presentations at the Collaboration Meetings

D1 D. Grandi and D. Rozza.

**Magnetosphere Effects and AMS-02 Solar Protons.**

*Presentation for the AMS-02 Analysis Meeting, November 2013*

D2 D. Grandi and D. Rozza.

**Rigidity Cutoff Update From AMS-02 Solar protons - 1.**

*Presentation for the AMS-02 Analysis Meeting, March 2014*

D3 D. Grandi and D. Rozza.

**Rigidity Cutoff Update From AMS-02 Solar protons - 2.**

*Presentation for the AMS-02 Analysis Meeting, April 2014*

D4 D. Grandi and D. Rozza.

**AMS Rigidity Cutoff with Tsyganenko 2005 - Update.**

*Presentation for the AMS-02 Analysis Meeting, September 2014*

D5 D. Grandi, D. Rozza, and S. Della Torre.

**Tsyganenko 2005 Cutoff, effect on Particle Rates - 1.**

*Presentation for the AMS-02 Analysis Meeting, October 2014*

D6 D. Grandi and D. Rozza.

**Tsyganenko 2005 Cutoff, effect on Particle Rates - 2.**

*Presentation for the AMS-02 Analysis Meeting, March 2015*

D7

D8

D9

D10

## Internal Note

E1 S. Della Torre, D. Grandi, G. La Vacca, D. Rozza, and M. Tacconi.

**Geomagnetic Effects with AMS-02.**

*Internal report for the AMS-02 Collaboration, 2013*

## Thesis as Co-Advisor

F1

F2

F3

## School and Workshop

- **Sigrav Graduate School in Contemporary Relativity and Gravitational Physics**, X Edition: Astrophysical Black Holes, May 21-26 2012, Villa Olmo, Como, Italy (<http://www.centrovolta.it/sigrav2012/>), Attending
- **International Workshop on Positrons in Astrophysics**, March 20-23 2012, Mürren, Bernese Oberland, Switzerland (<http://www.cesr.fr/~pvb/astropositron/home.html>), Attending