Swiss Institute of Particle Physics

an Association according to Swiss law

Composition of the CHIPP EB: *Election of one member*

August 2012/JPR

Introduction

The CHIPP Executive Board is composed of up to four individuals: the Chair and one to three Vice-Chairs (Statutes Article 28.2). Their term of office is two years and renewable (Statutes Article 28.3). The Members of the CHIPP EB are elected by the Board (Article 27, litt. e of the Statutes).

Proposals

One of the present EB members (L. Baudis) has informed the Chair that she would like to step down from this function with effect on 31 December 2012.

For the open position as EB member, the call for nominations resulted in two names being supported by more than two Board Members. Out of these two, T. Montaruli is ready to serve.

The CV of T. Montaruli is attached.

The Board (in application of Article 27, litt. e of the Statutes) is requested

- **to elect** T. Montaruli for a first term as Member of the CHIPP Executive Board for the period 1 January 2013 – 31 December 2014.

Required majority: simple

July 2012

CURRICULUM VITAE of Prof. Teresa Montaruli

Personal Data

Place and Date of Birth: Livorno, Oct. 4, 1968; Citizenship: Italian
Foreign Languages: fluent English, French at intermediate level (B1).
Work Address: Département de physique nucléaire et corpusculaire, Université de Genève
24, Quai Ernest-Ansermet, 1211 Genève 4, Tel. +41-22-379-6273, E-mail: teresa.montaruli@unige.ch

Research Interests

Neutrino and gamma astronomy, neutrino oscillations, cosmic rays and particle astrophysics.

Appointments

From Oct. 1, 2011 Full Professor in the Département de physique nucléaire et corpusculaire (DPNC) de l'Universitè de Genève.
Apr.-Aug. 2011 Full Professor (Dep. of Physics, Univ. of Wisconsin - Madison).
Jun.-Aug. 2011 Ass. Professor (Dep. of Astronomy, University of Wisconsin - Madison.
Sep. 2007-Apr. 2011 Tenured Associate Professor (Dep. of Physics, University of Wisconsin - Madison).
Jan. 2006-Aug. 2007 Assistant Professor (Univ. of Wisconsin - Madison, on leave Univ. of Bari).
Jan. - Dec. 2005-Dec. Visiting Scientist (Univ. of Wisconsin - Madison, on leave Univ. of Bari).
Oct. 2004-9 Tenured, Assistant Professor (Univ. of Bari).
Oct. 2001-4 Assistant Professor (University of Bari).

Education

Oct. 1998 Ph.D. in Physics (University of Bari), thesis on *"Atmospheric neutrino flux and search for astrophysical neutrinos. Measurement with MACRO at Gran Sasso"*
Dec. 1994 Specialization Diploma in Physics (U. of Bologna), thesis on *"Upper limits on neutrino fluxes induced by WIMPs in the Sun and the Earth with MACRO"* .
Dec. 1993 Physics Laurea Degree (U. of Bari), *summa cum laude*, thesis on *"Upward-going muon flux measurement with the MACRO detector"*.

Awards, Honors and Scientific Charges

From Mar. 2012 Member of the Advisory Committee of Laboratori Nazionali del Gran Sasso
From Sep. 2011 Honorary Fellow of the University of Wisconsin - Madison
Since 2010 Fellow of the American Physics Society "for fundamental contributions, both experimental and theoretical, to the understanding of cosmic and atmospheric neutrino fluxes, neutrino mass, and the spectra of dark matter annihilations";
Member of the Particle Astrophysics and Gravitation Prioritization Panel of the Astro Survey 2010 of the National Academy: http://sites.nationalacademies.org/BPA/BPA_049810
2001 Shakti P. Duggal Award "Introduced in 1983 in recognition of significant contributions to cosmic ray physics by a young scientist of outstanding ability", ceremony at the 27^{th} International Cosmic Ray

Conference, Hamburg. Published in Physics Today and available in http://www.physicstoday.org/pt/vol-54/iss-10/p86a.html.
Referee of various journals (Astronomical Journal, Astroparticle Physics, JCAP, New J. Physics.)
Reviewer of NSF proposals, of the Swiss National Science Foundation, of the Netherlands Foundation for Fundamental Research on Matter.

Grants and Proposals

2012 PI of Sinergia Swiss National Foundation (SNF) CTA Proposal joining UniGE-DPNC, UniGE-ISDC, ETHZ, EPFL, Zurich Univ. (granted 1.9MCHF/3yr);
2011 PI of IceCube SNF Proposal (granted 3.26kCHF/2yr);
2010 PI of HAWC for UW-Madison and co-PI for the construction proposal; co-PI of IceCube National Science Foundation Data Analysis Proposal; PI of UW-Madison Grad School Proposals;
2009 PI of NASA GLAST Investigator (Cycle 2) Proposal;
2006-2011 PI of Blazar monitoring with WIYN 0.9 m telescope;
2008 PI of UW-Madison Grad School Proposal **2007-2010** co-PI of IceCube Analysis Proposal.

Responsibilities in Experiments and Projects

Since 2011 CTA: Institution Board member, Leader of the construction project of a Small-size Telescope Davies Cotton of 4m diameter.
Since 2011 FACT telescope (first prototype of Geiger-APD camera): Associate membership and Institution Board member, shutter construction, slow control and installation, data analysis.
Since 2009-2011 HAWC: Institution Board member, Level 3 responsibility on Trigger, software development, reconstruction and data analysis.
Since 2005 IceCube: Trigger Filter and Transmission Board, Publication committee member (2005-7), point source analysis, coordinate transformation software, neutrino flux estimation software.
Since 2007 Associate member of the **VERITAS** collaboration, optical monitoring of blazars.
Since 2000 ANTARES: Multi-messenger coordinator (2008-11), responsible for the neutrino Monte Carlo physics generator, Astrophysics working group coord. (2000-8), Publication committee (2001-8).
1999-2007 NEMO R&D for a km^3 neutrino telescope in the Mediterranean sea, responsible of Monte Carlo simulation of physics and detector.
2005-2007 KM3NeT R&D for a km^3 neutrino telescope in the Mediterranean sea.
1993-2000 MACRO at the Gran Sasso National Laboratories of the INFN, atmospheric neutrino oscillation analysis, neutrino astrophysics, WIMP search.

Invited Talks and Lectures in Int. Schools (2009-11)

Cosmic-Ray Research in Icy Environment comes back with a Vengeance: the 1-km3 IceCube Neutrino-Observatory in Antarctica, SCNAT Jahreskongress 2012 Annual Congress, Interlaken, Oct. 2012.
Neutrino Astronomy, 4^{th} International Summer School on Astroparticle Physics Nijmegen12, Jul. 2012.
High Energy Neutrino Astronomy, TAUP2011, Munich, Germany, Sep. 2011.
Lectures on Solar, Supernova and Cosmic Neutrinos, Int. Neutrino Summer School, Geneva, Jul. 2011.
Cosmic Neutrinos, Int. Europhysics Conf. on High Energy Physics EPS-HEP 2011, Grenoble, Jul. 2011.

Looking at the Neutrino Sky, Nusky 2011, Trieste, Jun. 2011.
The search for Cosmic Ray Sources, Blois, May 2011.
Physics at Neutrino Telescopes, Neutrino Telescopes, Venice, Mar. 2011.
The Physics at Neutrino Telescopes and IceCube Recent Results, William & Mary, Apr. 8, 2011
Neutrino Astronomy and IceCube, 6^{th} Patras Workshop on Axions, WIMPs and WISPs, Zurich, July 2010.
Lectures on Neutrino Telescopes, SLAC Summer School, Aug. 2010.
IceCube and Searches for Astrophysical Sources, CRIS 2010, Catania, Sep. 2010.
The Gamma-Neutrino-Cosmic Ray Astronomy Connection, Vulcano Workshop 2010, Vulcano, May 2010.
Neutrino and multi-messenger astronomywith IceCube and HAWC, Weizmann Institute, Tel Aviv, Nov. 15, 2010.
The Gamma-Neutrino-Cosmic ray connection: multi-messenger astronomy, Geneva Univ., Sep. 3, 2010.
Rapporteur Talk on High Energy Phenomena and X-ray, Gamma-Ray and Neutrino Astronomy and Astrophysics Sessions, 31^{th} Int. Cosmic Ray Conference (ICRC2009), Lodz, Poland.
Recent Results from IceCube, American Physical Society Meeting, Denver, May 2009.
Searching for Astrophysical Neutrinos in Neutrino Telescopes, The 2009 Snowbird Workshop on Particle Astrophysics, Astronomy and Cosmology, SNOWPAC2009, Utah, Feb. 2009.
In search for extra-terrestrial high-energy neutrinos, seminar at Rochester University, Dec. 1, 2009.
In search for extra-terrestrial high-energy neutrinos, colloquium at Vanderbilt University, Nov. 12, 2009.
Searching for extra-terrestrial high-energy neutrinos, seminar at Laboratori Nazionali del Gran Sasso, Oct. 1 and at Laboratori Nazionali di Frascati, Oct 16, 2009.
Recent IceCube Results, Kavli Institute for Cosmological Physics (KICP), Chicago, Mar. 11, 2009.

Teaching activity

University of Geneva: Dtecteurs et colliders and **Particules dans l'universe** (Fall 2012);
University of Wisconsin: Phys 801 Instrumentation and Methods in Astroparticle Physics (Spring 2006 and 2010); **Phys 2018 General Physics** (Fall 2006 and 2007, Spring 2008); **Phys 248 A Modern Introduction to Physics** (Springs 2007 and 2009).
University of Bari: **Fundamental Physics Courses** and **Experimental Lab. of Optics and Linear Electronics** (2001-4).
PhD and Master Thesis advisor.

PUBLICATION LIST of TERESA MONTARULI (2009-2012)

1) Peer-reviewed articles

IceCube Experiment

[1] R. Abbasi *et al*,*An absence of neutrinos associated with cosmic-ray acceleration in ?-ray bursts*, Nature **484** (2012) 351-353.

[2] R. Abbasi *et al*,*Multi-year search for dark matter annihilations in the Sun with the AMANDA-II and IceCube detectors*, Phys. Rev. **D85** (2012) 042002.

[3] R. Abbasi *et al*, *Searching for soft relativistic jets in Core-collapse Supernovae with the IceCube Optical Follow-up Program*, A & A **539** (2012) A60 [arXiv:1111.7030].

[4] R. Abbasi *et al*,*Search for UHE Tau Neutrinos with IceCube*, accept. by Phys. Rev. D, DP11028, [arXiv:1202.4564]

[5] R. Abbasi *et al*, *The Design and Performance of IceCube DeepCore*, Astropart. Phys. **35** (2012) 615-624 [arXiv:1109.6096v1].

[6] R. Abbasi *et al*, *Observation of an Anisotropy in the Galactic Cosmic Ray arrival direction at 400 TeV with IceCube*, Astrophys. J. **746** (2012) 33 [arXiv:1111.7030]

[7] R. Abbasi *et al*, *IceCube sensitivity for low-energy neutrinos from nearby supernovae*, Astron. & Astrophysics **535** 2011 [arXiv:1108.0171].

[8] R. Abbasi *et al*, *Neutrino analysis of the September 2010 Crab Nebula flare and time-integrated constraints on neutrino emission from the Crab using IceCube*, ApJ. **745** (2011) 45 [arXiv:1106.3484].

[9] R. Abbasi *et al.*, *A search for a diffuse flux of astrophysical muon neutrinos with the IceCube 40-string detector*, Phys. Rev. **D 84** (2011) 082001 [arXiv:1104.5187].

[10] R. Abbasi *et al*, *Time-Dependent Searches for Point Sources of Neutrinos with the 40-String and 22-String Configurations of IceCube*, ApJ. **744** (2012) 1 [arXiv:1104.0075].

[11] R. Abbasi *et al.*, *Observation of anisotropy in the arrival directions of galactic cosmic rays at multiple angular scales with IceCube*, Astrop. J. **740** (2011) 16.

[12] R. Abbasi *et al.*, *Constraints on high-energy neutrino emission from SN 2008D*, Astronomy & Astrophysics **527** (20011) A28 [arXiv:1012.0881].

[13] R. Abbasi *et al*, *First search for atmospheric and extraterrestrial neutrino-induced cascades with the IceCube detector*, accep. by Phys. Rev. D (2011) [arXiv:11011692].

[14] R. Abbasi *et al*, *Constraints on the Extremely-high Energy Cosmic Neutrino Flux with the IceCube 2008-2009 Data*, Phys. Rev. **D 83** (2011) 092003.

[15] R. Abbasi *et al.*, *Time-Integrated Searches for Point-like Sources of Neutrinos with 40 Strings of IceCube*, Astrophys. J. **732** (2011) 18 [arXiv:1012.2137].

[16] R. Abbasi *et al.*, *Limits on neutrino emission from gamma-ray bursts with the 40-string IceCube detector*, Phys. Rev. Lett. **106** (2011) 141101 [astro-ph.HE/11011448].

[17] R. Abbasi *et al.*, *Search for Dark Matter from the Galactic Halo with the IceCube Neutrino Observatory*, Phys. Rev. **D 84** (2011) 022004 [astro-ph.HE/11013349].

[18] R. Abbasi *et al.*, *Measurement of the atmospheric neutrino spectrum from 100 GeV to 400 TeV with IceCube*, Phys. Rev. **D 83** (2011) 012001 [arXiv:1010.3980].

[19] R. Abbasi *et al.*, *Constraints on high-energy neutrino emission from SN 2008D*, Astronomy & Astrophysics **527** A28 (2011).

[20] R. Abbasi *et al.*, *Search for a Lorentz-violating sidereal signal with atmospheric neutrinos in IceCube*, Phys. Rev. **D 82** (2010) 112003 [arXiv:1010.4096].

[21] R. Abbasi *et al.*, *Search for neutrino-induced cascades with five years of AMANDA data*, Astrop. Phys. **34** (2011) 420-430.

[22] R. Abbasi *et al.*, *The first search for extremely-high energy cosmogenic neutrinos with the IceCube Neutrino Observatory*, Phys. Rev. **D82** (2010) 072003 [arXiv:1009.1442].

[23] R. Abbasi *et al.*, *Search for relativistic magnetic monopoles with the AMANDA-II neutrino telescope*, Eur. Phys. J. C **69** (2010) 361.

[24] R. Abbasi *et al.*, *The Energy Spectrum of Atmospheric Neutrinos between 2 and 200 TeV with the AMANDA-II Detector*, Astrop. Phys. **34** (2010) 48-58.

[25] R. Abbasi *et al.*, *Measurement of the Anisotropy of Cosmic Ray Arrival Directions with IceCube*, Astrop. J. **718** (2010) L194.

[26] R. Abbasi *et al.*, *Calibration and Characterization of the IceCube Photomultiplier Tube*, NIM **A 618** (2010) 139-152.

[27] R. Abbasi *et al.*, *Search for muon neutrinos from Gamma-Ray Bursts with the IceCube neutrino telescope*, Astrop. J. **710** (2010) 346 [arXiv:0907.2227].

[28] R. Abbasi *et al.*, *Measurement of sound speed vs. depth in South Pole ice for neutrino astronomy*, Astrop. Phys. **33** (2010) 277-286 [arXiv:0909.2629].

[29] R. Abbasi *et al.*, *Measurement of acoustic attenuation in South Pole ice*, Astrop. Phys. **34** (2010) 382-393.

[30] R. Abbasi *et al.*, *Search for High-Energy Muon Neutrinos from the "Naked-Eye" GRB 080319B with the IceCube Neutrino Telescope*, Astrop. J. **701** (2009) 1721-1731.

[31] R. Abbasi *et al.*, *Extending the search for neutrino point sources with IceCube above the horizon*, Phys. Rev. Lett. **103** (2009) 221102.

[32] R. Abbasi *et al.*, *First Neutrino Point-Source Results From the 22-String IceCube Detector*, Astrop. J. L **701** (2009) L47-L51.

[33] R. Abbasi *et al.*, *Search for Point Sources of High Energy Neutrinos with Final Data from AMANDA-II*, Phys. Rev. D **79** (2009) 062001.

[34] R. Abbasi *et al.*, The IceCube Collaboration, *Determination of the Atmospheric Neutrino Flux and Searches for New Physics with AMANDA-II*, Phys. Rev. D **79** (2009) 102005.

[35] R. Abbasi *et al.*, The IceCube Collaboration, *Limits on a muon flux from neutralino annihilations in the Sun with the IceCube 22-string detector*, Phys. Rev. Lett. **102** (2009) 201302.

[36] R. Abbasi *et al.*, The IceCube Collaboration, *The IceCube Data Acquisition System: Signal Capture, Digitization, and Time-stamping*, Nuclear Inst. and Methods in Physics Research, A 601 (2009), pp. 294-316, and arXiv:0810.4930.

[37] R. Abbasi *et al.*, The IceCube Collaboration, *Solar Energetic Particle Spectrum on 13 December 2006 Determined by IceTop*, Astrop. J. Lett. **689** (2008) L65-L68, and arXiv:0810.2034.

ANTARES Experiment

[38] S. Adrin-Martnez *et al.*, *Measurement of Neutrino Oscillations with the ANTARES detector* , accepted by Phys. Rev. Lett. B (2012) [arXiv:1206.0645].

[39] S. Adrin-Martnez *et al.*, *Measurement of the Group Velocity of Light in Sea Water at the ANTARES Site*, Astropart.Phys. **35** (2012) 552-557 [arXiv:1110.5184].

[40] S. Adrin-Martnez *et al.*, *Search for relativistic magnetic monopoles with the ANTARES neutrino telescope*, Astrop. Phys. **35** (2012) 634640.

[41] J.A. Aguilar *et al.*, *A method for detection of muon induced electromagnetic showers with the ANTARES detector* NIM **A 675** (2012), pp. 56-62

[42] S. Adrían-Martínez *et al*, *Measurement of the group velocity in sea water at the ANTARES site*, Astrop. Phys. **35** (2012) 552 [arXiv:1110.5184].

[43] M. Ageron *et al*, *The ANTARES telescope neutrino alert system*, Astrop. Phys. **35** (2012) 530 [arXiv:1103.4477].

[44] H. van Haren *et al*, *Acoustic and optical variations during rapid downward motion episodes in the deep north-western Mediterranean Sea*, Deep Sea Res. **58** (2011) 875 [arXiv:1111.6482].

[45] S. Adrían-Martínez *et al.*, *First Search for Point Sources of High Energy Cosmic Neutrinos with the ANTARES Neutrino Telescope*, Astrop. J **743** L14.

[46] M. Ageron *et al.*, *ANTARES: The first undersea neutrino telescope*, NIM **A 656** (2011) 1138.

[47] J.A. Aguilar *et al.*, *Time Calibration of the ANTARES Neutrino Telescope*, Astrop. Phys. **34** (2011) 539-549 [arXiv:1012.2204].

[48] J.A. Aguilar *et al.*, *A fast Algorithm for Muon Track Reconstruction and its Application to the ANTARES Neutrino Telescope*, Astrop. Phys. **34** (2011) 652-662.

[49] J.A. Aguilar *et al.*, *Search for a diffuse flux of high-energy neutrino muons with the ANTARES neutrino telescope*, Phys. Lett. **B** (2011) 16-22 [arXiv:1011.3772].

[50] J.A. Aguilar *et al.*, *AMADEUS The Acoustic Neutrino Detection Test System of the ANTARES Deep-Sea Neutrino Telescope*, accepted by NIM A (2010) [arXiv:1009.4179].

[51] J.A. Aguilar *et al.*, *Zenith distribution and flux of atmospheric muons measured with the 5-line ANTARES detector*, Astrop. Phys. **34** (2010) 179-184 [arXiv:1007.1777].

[52] J.A. Aguilar *et al.*, *Performance of the front-end electronics of the ANTARES Neutrino Telescope*, Nucl. Instrum. Meth. **A622** (2010) 59-73. [arXiv:1007.2549].

[53] J.A. Aguilar *et al.*, *Measurement of the atmospheric muon flux with a 4 GeV threshold in the ANTARES neutrino telescope*, Astrop. Phys. **33** (2010) 86-90.

[54] J.A. Aguilar *et al.*, *Performance of the first ANTARES detector line*, Astrop. Phys. **31** (2009) 277-283.

VERITAS, HAWC and WIYN Experiments

[55] A. U. Abeysekara *et al.*, *On the sensitivity of the HAWC observatory to gamma-ray bursts*, Astropart.Phys. **35** (2012) 641-650 [arXiv:1108.6034].

[56] V.A. Acciari *et al.*, *TeV and Multi-wavelength Observations of Mrk 421 in 2006-2008*, Astrop. J. **738** (2011) 25.

[57] D. Horan *et al.*, *Multiwavelength Observations of Mrk 421 in 2005-2006*, Astrophys. J. **695** (2009) 596-618.

Submitted papers to Peer Reviewed Journals or papers in the archive

[58] S. Adrin-Martnez *et al.*, *Search for Cosmic Neutrino Point Sources with Four Year Data of the ANTARES Telescope*, subm. to Astrop. Phys. [arXiv:1207.3105].

[59] S. Adrin-Martnez *et al.*, *The Positioning System of the ANTARES Neutrino Telescope*, [arXiv:1202.3894].

[60] R. Abbasi *et al*, *All-particle cosmic ray energy spectrum measured with 26 IceTop stations*, subm. to Astrop. Phys. [arXiv:1202.3039].

[61] S. Adrin-Martnez *et al.*, *Measurement of Atmospheric Neutrino Oscillations with the ANTARES Neutrino Telescope*, subm. to Phys. Lett B [arXiv:1206.0645].

[62] S. Adrin-Martnez *et al.*, *A First Search for coincident Gravitational Waves and High Energy Neutrinos using LIGO, Virgo and ANTARES data from 2007*, [arXiv:1205.3018].

[63] R. Abbasi *et al*, *Searches for periodic neutrino emission from binary systems with 22 and 40 strings of IceCube*, Astrophys. J. **748** (2012) 118 [arXiv:1108.3023] .

[64] S. Adrian-Martinez *et al.*, *Search for Neutrino Emission from Gamma-Ray Flaring Blazars with the ANTARES Telescope*, subm. to ApJ [arXiv:1111.3473].

[65] T. Montaruli & F. Ronga, *Comparison of muon and neutrino times from decays of mesons in the atmosphere* [arXiv:1109.6238].

2) Reviews

[66] L. Anchordoqui and T. Montaruli, *In Search of Extraterrestrial High Energy Neutrinos*, Ann. Rev. Nucl. Part. Sci. **60** (2010) 129-162 [arXiv:0912.1035].

[67] W. Bednarek, F. Burgio and T. Montaruli, *Galactic discrete sources of high energy neutrinos*, Astron. Rev. **49** (2005) 1-21.

3) Books

[68] F. Halzen, A. Karle, T. Montaruli, *Proceedings of* 2^{nd} *Workshop TeV particle Astrophysics, Madison, USA, August 28-31, 2006*, J. Phys. Conf. Ser. 60 (2006) 1-345.

4) Proceedings of Invited Talks

[69] T. Montaruli, *Physics at neutrino telescopes*, in Venice 2011, Neutrino Telescopes, pp. 331-340 (2012).

[70] T. Montaruli, *Neutrino astronomy and IceCube*, in 6^{th} Patras Workshop on Axions, WIMPs and WISPs, 14-17.