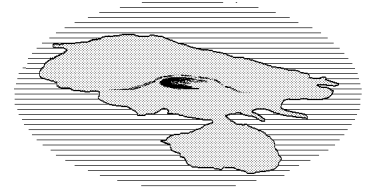


VULCANO WORKSHOP 2014

May 18-24, Vulcano, Italy

FRONTIER OBJECTS IN ASTROPHYSICS AND PARTICLE PHYSICS



Vulcano Workshop 2014 Frontier Objects in AstroPhysics and Particle Physics

Tentative Scientific Program

Monday, May 19th

Astrophysics/Cosmology

Chair: M. Branchesi

- 08:45 R. Fusco Femiano Welcome address
G. Mannocchi
- 09:00 M. Boer The eve of multimessenger astronomy
- 09:25 S. Ettori Galaxy clusters as cosmological probe: from X-ray observables to the total mass
- 09:50 G. Brunetti Diffuse radio emission in galaxy clusters: crossroad between astrophysics and cosmology
- 10:15 F. Nicastro Missing Baryons at all Astronomical Scales: current evidence and future prospects
- 10:40 *Coffee Break*

Chair: A. Orlando

- 11:00 M. Lattanzi Cosmic Microwave Background from ground based and space experiments
- 11:25 C. Gustavino Big Bang Nucleosynthesis, Neutrinos and Nuclear Astrophysics

Cosmic Rays

- 11:50 R. Battiston/ F. Pilo AMS Experiment

Astrophysics/Gravitational Waves and Gravity

- 12:15 S. Capozziello Open problems in gravitational physics
- 12:40 L. Cacciapuoti Fundamental physics in the ESA Program
- 13:05 END
- Lunch*

Astrophysics/Gravitational Waves and Gravity

Chair: M. Boer

- 17:00 M. Branchesi Observational prospects in the electromagnetic domain of the gravitational wave sources
- 17:25 D. Currie Precision tests of General Relativity and Gravitation by Lunar Laser Ranging
- 17:50 J. Páramos An alternative gravity model with a non-minimal coupling between matter and curvature
- 18:15 F. Sorrentino Fundamental physics with space and ground atomic quantum sensors
- 18:40 A. Orlando Detection of B-mode Polarization using BICEP2
- 19:30 END
- Dinner*

Tuesday, May 20th

Future Prospects

Chair: S. Capozziello

09:00 S. N. Zhang China's Programs of Astroparticle Physics in Space

Dark Matter

09:25 P. Ullio An update on dark matter searches

09:50 M. Pietroni Digging out Dark Energy properties from the Large Scale Structure of the Universe

10:15 D. G. Cerdeño SuperCDMS: Recent results on low mass WIMPs

10:40 *Coffee Break*

Chair: Y. Mambrini

11:00 R. Bernabei New DAMA/LIBRA results

11:25 V. Gehman Direct Search for Dark Matter with Two-phase Xenon Detectors: Current Status of LUX and Plans for LZ

11:50 M. Messina Xenon Experiment Results

12:15 A. Albert Indirect Searches for Dark Matter with the Fermi Large Area Telescope

12:40 R. Scaramella Euclid space mission: a challenge devoted to the study of Cosmological Dark Energy & Dark Matter

13:05 END

Lunch

Dark Matter

Chair: A.A.Petrukhin

17:00 G. Vargas Are we seeing dark matter with the Fermi-LAT in a region around the Milky Way center?

17:25 N. Menci Warm Dark Matter vs. Cold Dark Matter Scenarios for the Formation of Cosmic Structures

17:50 J. Siegal-Gaskins Dark matter signals from the Inner Galaxy?

18:15 C. Farnier Dark matter searches with the Cherenkov Telescope Array

18:35 A. Pullia A new technique for direct investigation of dark matter

Cosmology/Astroparticle

19:00 A. Masiero LHC: link with cosmology and astroparticle

19:25 END

Dinner

Wednesday, May 21st

Astrophysics/Cosmology

Chair: S.N. Zhang

09:00 K. Dolag Formation and Evolution of LSS

Particle Physics/ Interactions/Astroparticle Physics

09:25 S. Bertolucci Higgs bosons in the Standard Model and beyond

09:50 G. Altarelli The Higgs and the excessive success of the SM

10:15 Y. Mambrini Dark Z' : from direct detection to LHC

10:40 R. Engel LHC results and the interpretation of cosmic ray data

11:05 *Coffee Break*

Chair: S. Bertolucci

11:25 R. Ulrich Hadronic cross sections in extensive air showers and at accelerators

11:50 C. Brogгинi LUNA: from Sun to Novae and beyond

12:15 J. P. Harding The TeV Cosmic-Ray Anisotropy from Local Dark Matter Annihilation

12:40 S. Ragazzi Astroparticle Physics at LNGS

13:05 END

Lunch

Excursion to Lipari Archeological Museum

20:30 *Dinner*

Thursday, May 22nd

Cosmic Ray origin, Gamma and Neutrino Astronomy

Chair: G. Altarelli

09:00 G. Sinnis Ground-Based Gamma-Ray Astronomy
09:25 M. Miceli SNRs as cosmic accelerator
09:50 J. Knödlseeder Cherenkov Telescope Array: Science prospects and project status
10:15 C. Pittori Crab observations with AGILE
10:40 *Coffee Break*

Chair: A.Castellina

11:00 F. Longo GRB observations with FERMI
11:25 E. Troja GRBs in the multimessenger era
11:50 J. Cortina The MAGIC legacy to next generation of IACTs: results and prospects
12:15 S. Buson Flaring Gamma-ray AGNs
12:40 S.N. Zhang Correlation analysis between sky maps of Tibet cosmic rays and microwave observed with WMAP and Planck
13:05 END
Lunch

Neutrino

Chair: G. Sinnis

17:00 F. Gatti Detection technique for neutrinos and high energy astrophysics
17:25 G. Golup Neutrino observations with IceCube
17:50 A. Capone High-Energy Neutrino Astronomy with the ANTARES Deep-Sea Cherenkov detector and with the future KM3NeT Telescope.
18:15 L.F.F. Stokes Double Chooz: Towards the near detector phase
18:40 C. Sirignano The OPERA experiment: new results
19:05 C. Giunti Status of neutrino oscillations and sterile neutrinos
19:30 A. A. Petrukhin Are IceCube PeV neutrino events extraterrestrial or of atmospheric origin
19:55 END
Dinner

Friday, May 23rd

Cosmic Rays

Chair: J. Siegal-Gaskins

- 09:00 R. Sparvoli Direct measurements of cosmic rays in space
09:25 E. Mocchiutti Results from the PAMELA space experiment
09:50 G. Di Sciascio CR spectrum and anisotropy with ARGO-YBJ
10:15 Z. Cao The knee of proton spectrum
10:30 P. Desiati High energy cosmic ray anisotropy
10:55 *Coffee Break*

Chair: Z. Cao

- 11:15 R. Aloisio/A. Grillo Cosmic Rays at Ultra High Energies
11:40 A. Haungs The heavy knee and the light ankle observed with KASCADE-Grande
12:05 P. Sokolsky Recent Results from the Telescope Array Experiment
12:30 A. Castellina The Pierre Auger Observatory: highlights and future projects
12:55 R. Bonino Large-Scale Distribution of Arrival Directions of Cosmic Rays Detected at the Pierre Auger Observatory Above 10 PeV
13:20 END
Lunch

Chair: P. Sokolsky

- 17:00 D. Fargion UHECR and GRB Neutrinos : incomplete revolutions ?
17:25 A. Grillo Are cosmic rays still a valuable probe of Lorentz Invariance Violations in the Auger era?
17:50 A. Tricomi Astroparticle Physics with the LHCf Detector at LHC
18:15 F. Pilo High-energy Gamma Rays detection with the AMS-02 electromagnetic calorimeter
18:30 M. Marisaldi High energy atmospheric physics and Terrestrial Gamma-ray Flashes
18:55 V. Bonvicini The GAMMA-400 mission
19:20 P. Maestro The CALET mission on the International Space Station
19:35 R. Krause AERA – The Auger Engineering Radio Array
19:50 END
Dinner

Saturday, May 24th

Future Prospects

Chair: G. Picozza

- 09:00 C. Zhen Future reactor neutrino experiments in China
09:25 F. Ferroni Future in Astroparticle at INFN
09:50 S. Katsanevas Astroparticle in Europe
10:15 G. Matt The hot and energetic universe with Athena
10:40 *Coffee Break*

Chair: F. Ferroni

- 11:00 P. Ubertini Future of space astronomy: the end of the dark ages?
11:25 C. Zhen A Multi-purpose Cosmic Ray Experiment: The LHAASO Project
11:50 A. Santangelo JEM-EUSO
12:15 E. Coccia The quest of gravitational waves: a global strategy
12:40 R. Fusco Femiano Closing address
G. Mannocchi