Seminari di Fisica 2013 dell'Universita' di Ferrara e della sezione INFN

Report of Contributions

https://agenda.infn.it/e/6608

Contribution ID: **0** Type: **not specified**

Recent results from the AMS on the International Space Station

Wednesday, 9 October 2013 15:00 (1 hour)

Abstract
Two years after the launch and begin of operation of AMS on the ISS, precision measurements of cosmic rays composition and spectra are presented. We also discuss the experience gained operating for the first time and for a long time a large particle physics experiment on the ISS.

Presenter: BATTISTON, Roberto (PG)

Contribution ID: **1** Type: **not specified**

VIII CONGRESSO NAZIONALE ”ASTROFISICA DEGLI OGGETTI COMPATTI”

Tuesday, 17 September 2013 00:00 (20 minutes)

Il congresso vertera‘ sui seguenti argomenti:

- Pulsar radio, Resti di Supernova, Pulsar Wind Nebulae
- Stelle di Neutroni in Binarie X
- Pulsar X Anomale, Stelle di Neutroni isolate, Soft-Gamma Repeaters
- Buchi Neri Stellari, di Massa Intermedia e Ultraluminous X-ray Sources
- Nane Bianche e Variabili Cataclismiche
- Nuova strumentazione per l’astrofisica delle alte energie

http://www.brera.inaf.it/~campana/cnoc8

Contribution ID: **2** Type: **not specified**

A review on B and B_s decays

Wednesday, 18 September 2013 11:00 (1 hour)

A review of B and B_s meson decays is presented, with emphasis given to processes most sensitive to physics beyond the Standard Model. The most recent results from B Factories and hadron colliders on radiative and electroweak penguins, and on leptonic and semileptonic decays involving tau leptons, will be shown. Implications on new physics will be discussed.

Presenter: BOZZI, Concezio (FE)

Contribution ID: **3** Type: **not specified**

Recent Measurements of Form Factors of Mesons and Hyperons at large timelike Momentum Transfers

Monday, 28 October 2013 11:00 (1 hour)

Form factors provide some of the most direct insight into the structure of hadrons. For mesons and hyperons, none of which are available as targets, form factor measurements can only be made for timelike momentum transfers by means of e+e- -> hhbar reactions, where h can be any hadron. Further, only for large momentum transfers the measurements can be hopefully understood in terms of QCD, or more realistically in terms of pQCD. We have made precision measurements of the form factors of pions, kaons, protons, and all the neutral and charged hyperons, lambda, sigma, cascade, and omega, at the large momentum transfers of 14.2 and 17.4 GeV^2. The results reveal unexpected features, and pose serious questions for pQCD and the role of SU(3)- breaking.

Presenter: Prof. SETH, Kamal (NorthWestern Universtity USA)

Contribution ID: **4** Type: **not specified**

Dualities near the Horizon

Wednesday, 23 October 2013 15:30 (1 hour)

In four-dimensional gravity theories with local supersymmetry, electric-magnetic duality rotations play a significant role, especially through the symplectic matrix M, related to the coupling of scalar fields to Abelian 2-form field-strengths.
I will give a basic introduction on some aspects of supergravity theories, focusing on the class of duality groups “of type E7”, and on the corresponding notion of “Freudenthal duality”.
I will also give a brief account of the attractor mechanism for scalar fields in asymptotically flat, spherically symmetric, static, dyonic and extremal black holes.

Within this framework, I will present a universal expression of the Abelian 2-form field strengths in terms of the electric and magnetic charges of the black hole, in the near-horizon Bertotti-Robinson geometry.

Main Reference : arXiv:1305.2057v1

Presenter: Dr MARRANI, Alessio (KU University of Leuven (Belgio))

Contribution ID: **5** Type: **not specified**

Understanding the proton size puzzle by hyperfine spectroscopy

Tuesday, 29 October 2013 14:00 (1 hour)

The recent PSI Lamb shift experiment has displayed a disagreement of 7sigmas between the experimental values of the proton r.m.s. charge radius extracted from e-p scattering and muonic hydrogen spectroscopy. This discrepancy has not yet been explained; it is not even known whether it may be ascribed to the different experimental methods or reflects some fundamental features of the muon. The latter hypothesis may be tested best by comparing the values of an other characteristics of the proton, the Zemach radius Rp, obtainable from measurements of the hyperfine splitting (HFS) in ordinary and muonic hydrogen atoms. A summary of the progress in the experimental ideas for this measurement is presented and the main methodological problems are analyzed quantitatively.

Presenter: D. BAKALOV (INRNE, Bulgarian Academy of sciences)

Contribution ID: **6** Type: **not specified**

Lezioni di Astrofisica (The transient sky)

Wednesday, 4 December 2013 11:00 (1 hour)

Programma dettagliato:
http://www.astro.caltech.edu/~srk/FerraraCourse/KulkarniTransientCourse.html

December 4, Wednesday
1. Lecture "Introduction to the Optical Transient Sky (11.00)
2. Lecture "Simple Explosions, Part I" (16,00)

December 5, Thursday
3. Lecture "Simple Explosions, Part II" (11.00)
4. Lecture "Supernovae Classification" (16.00)

December 6, Friday
5. Lecture "New Types of Supernovae" (11.00)
6. Lecture "A strategy for the future" (16.00)

December 11, Wednesday
7. Lecture "Introduction to Gamma-ray bursts" (16.00)

December 12, Thursday
8. Lecture " Long duration GRBs and Supernova association " (11.00)
9. Lecture "Short Hard Bursts" (16.00)

December 13, Friday
10. Lecture "Ultra-Long GRBs (A mystery)" (11.00)
11. Lecture "Soft Gamma-Ray Repeaters" (16.00)

December 17 or 18 (TBD)
12. Lecture: Student short talks (Time TBD)

December 18, Wednesday
13. Lecture "Transients in the Radio Band (Introduction)" (11.00)
14. Lecture "Long Duration Transients: Status" (16.00)

December 19,
15. Lecture "The Parkes Fast Radio Bursts (PFRB): Status" (11.00)
16. Lecture "A Critical Examination of the PFRB"

Presenter: Prof. KULLARNI, Shrinivas (CalTech, USA)

Contribution ID: **7** Type: **not specified**

Polarizing solid HD and its prospects with electron beams.

Monday, 18 November 2013 11:00 (20 minutes)

Abstract: The production of a polarized solid HD represents a technical challenge that by now can be considered solved. The actual frontier is the implementation of such a target in a Deep Inelastic Scattering experiment. An intensive program is presently underway at Jefferson Lab (Virgina, USA) to explore the possible effects of the interaction of an electron beam with the target material. Would the investigation be successfull, a new powerful tool would be available to experimentally address the still unsolved
misteries of the proton spin.

Presenter: Prof. SANDORFI, Alex (Jefferson Lab (USA))

Contribution ID: **8** Type: **not specified**

Fingerprints of Dark Matter in the gamma-ray sky (?)

Monday, 25 November 2013 16:00 (1 hour)

"The quest of Dark Matter signals in the gamma-ray sky is one of the most intriguing and exciting challenges in astrophysics.
The analysis of the gamma-ray photons collected by the Fermi Large Area Telescope reveals the existence of an excess towards the Galactic center compatible with Dark Matter annihilation.
We review and discuss the recent literature about this subject."

Presenter: URBANO, Alfredo (SISSA Trieste)

Contribution ID: **9** Type: **not specified**

Dal Giallo al Rosso: viraggio negli affreschi di Pompei

Thursday, 5 December 2013 15:00 (1 hour)

Presenter: OMARINI, Sergio (INO-CNR Firenze)

Contribution ID: **11** Type: **not specified**

Decay law in quantum mechanics and in quantum field theory.

Thursday, 19 December 2013 14:00 (1 hour)

Abstract: The description of the decay law and its link to the energy distribution is shown in quantum mechanics (QM). Deviations from the exponential decay law exist at short and long times; experiments are discussed, in which these deviations have been seen. A related effect is the so-called Quantum Zeno effect, which forbids the decay (or a transition) of a quantum state that is observed at sufficiently small time intervals. Then, the attention is focused on the the decay in the context of quantum field theory (QFT): it is shown that deviations from the exponential law occur also here. Similarities and differences with QM are discussed. The important case of the decay, in which more than one decay channel is present, is shown.

Presenter: Dr GIACOSA, Francesco (Institut für Theoretische Physik, Johann Wolfgang Goethe-Universität, Frankfurt)