Seminars Fall 2010

Tue Sep 21, 2010

3pm - 4pm Daiske Yamada (Crete)
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010

Fri Sep 24, 2010

3pm - 4pm Hong Bao Zhang (Crete) on "Scattering Amlitude from BCFW"
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010

Tue Sep 28, 2010

3pm - 4pm
Elias Kiritsis (Crete) on "Relativistic Langevin Diffusion of Heavy Quarks from Holography"
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010

Fri Oct 1, 2010

3pm - 4pm
Journal Club : Matthew Lippert on "AdS/QHE: Towards a Holographic Description of Quantum Hall Experiments"
Where: Seminar Room
Calendar: Seminars Fall 2010
Description:
Matt will lead the discussion of "AdS/QHE: Towards a Holographic Description of Quantum Hall Experiments" by Bayntun, Burgess, Dolan, and Lee, arXiv:1008.1917. It's about phenomenological models using dyonic axio-dilaton black branes with SL(2,Z) symmetry. One of the author is a condensed matter theorist, so there are interesting details about QHE experiments. Should be interesting!

Fri Oct 8, 2010

3pm - 4pm Matti Jarvinen (Crete) on "Walking Technicolor at Colliders"
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
ABSTRACT: I will discuss the collider phenomenology of modern, phenomenologically viable walking technicolor theories. First I will start by a review of the effective Lagrangian formalism and constraints within these models. Then I will analyze their most promising signatures at the LHC and at linear colliders.

Seminars Fall 2010

Tue Oct 12, 2010

1:30pm - 2:30pm
Takeshi Morita (Crete) on "Phases of Large-N Yang-Mills Theory on Small Tori"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
ABSTRACT: In this talk, I will introduce a new approach to analyze a large-N Yang-Mils theory on a d+D dimensional torus. I show that, if the radii of the D dimensional torus are enough small such that a dimensional reduction is possible, then we can study thermodynamics of the theory analytically in d=0,1 and 2 cases by using a 1/D expansion, which would be valid if D >= 2. In d=0 case, this approach is valid even in finite N. In d=1 case, we can find a confinement/deconfinement type transition. The analysis in d=2 case has not been completed, but we have found four phases and determined the order of the phase transitions between them This talk is based on arXiv:0910.4526.

Fri Oct 15, 2010

3pm - 4pm   Elias Kiritsis (Crete) on "Gravity from a Gauge Theory Landscape"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010

Tue Oct 19, 2010

1:30pm - 2:30pm
Xenophon Zotos (Crete) on "Issues on the Transport Phenomena of 1D Quantum Magnets"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
ABSTRACT: I will discuss recent theoretical developments on the dynamics of one dimensional quantum magnets [1]. In particular, I will focus on open issues and controversial results related to the finite temperature transport of integrable models [2]. These singular systems are commonly used in the description of quasi-one dimensional materials. They are recently attracting interest in connection to experiments, following the discovery of unusual thermal conductivity in quasi-1D magnetic materials [3]. [1] X. Zotos, J. Phys. Soc. Jpn. v.74, 173 (2005). [2] X. Zotos, F. Naef and P. Prelovsek, Phys. Rev. B55, 11029 (1997). [3] C. Hess, Eur. Phys. J. Special Topics, v.151, 73 (2007).

Fri Oct 22, 2010

3pm - 4pm
Journal Club: Vasilis Niarchos (Crete) on "Holographic and Wilsonian Renormalization Groups"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
Vasilis Niarchos will lead a Journal Club based on the recent paper, arXiv: 1010.1264. The title is ``Holographic and Wilsonian Renormalization Groups'' by Idse Heemskerk, Joseph Polchinski

Seminars Fall 2010

Tue Oct 26, 2010

3pm - 4pm
Ofer Aharony (Weizmann) on "Strongly coupled gauge theories on anti-de Sitter space"

Where: 2nd Floor Seminar Room
Calendar: Seminars Fall 2010
Description:
ABSTRACT: I will discuss work in progress on strongly coupled field theories on anti-de Sitter (AdS) space. These are interesting in their own right, as the anti-de Sitter space provides a natural IR cutoff. They are also interesting in the context of the AdS/CFT correspondence, in two directions. Strongly coupled field theories on D dimensional AdS space can have (D+1) dimensional gravitational duals. And, if such theories appear as part of a gravitational background, they could be part of a dual description in terms of conformal field theories in (D-1) dimensions. I will focus on two main examples, the d=4 N=4 SYM theory on AdS_4, and confining field theories on AdS space.

Fri Nov 12, 2010

3pm - 4pm
Takeshi Morita (Crete) on "Phases of Large-N gauge theories and their gravity duals."

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
This talk is the second part of my previous talk. In the previous talk, I introduced the phase structures of the large-N thermal gauge theories. In this talk, I will show how we can construct these theories from D-branes and discuss their gravity duals. Especially some phase transitions in the gauge theories can be understood as Gregory-Laflamme transitions in gravity. In general relativity, Gregory-Laflamme transition is an important issue associated with the cosmic censorship hypothesis, and we argue whether we can address this problem through the dual gauge theories.

Fri Nov 19, 2010

3pm - 4pm   Matti Jarvinen (Crete) on "Introduction to Technicolor"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
Technicolor is an extension of the standard model, where the electroweak symmetry is broken dynamically by a new strongly interacting gauge theory. I will start by introducing the basic concepts of technicolor, using the (scaled-up) two-flavor QCD as an example. Depending on how time permits, I will also discuss extended technicolor, walking, electroweak precision tests, and vacuum alignment in technicolor.

Seminars Fall 2010

Tue Nov 23, 2010

1:30pm - 2:30pm
Patrick Kerner (Munich) on "On Hydrodynamics of holographic p-wave Superfluids"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
ABSTRACT: We discuss holographic duals of strongly interacting gauge theories
which show properties of p-wave superfluids which in addition to an Abelian symmetry also
break the spatial rotational symmetry. The gravity duals of these superfluid states are black hole
solutions with a vector hair which we construct in a non-Abelian Einstein-Yang-Mills theory and in
the D3/D7 brane setup. The latter allows us to identify the dual field theory explicitly. After we
constructed the vector hair state we study the conductivity and shear viscosity which is non-
universal due to the breaking of the rotational symmetry.

Wed Nov 24, 2010

4pm - 5:30pm
Jonathan Sapirstein (Notre Dame) on "Atomic Physics Tests of Standard Model"

Where: IESL-FORTH, Seminar room 2
Calendar: Seminars Fall 2010
Description:
'The use of atomic physics in putting limits on the electron electric dipole moment
(edm) is discussed, along with recent developments in cesium parity nonconservation theory'.

Fri Nov 26, 2010

3pm - 4:30pm   Matti Jarvinen (Crete) on "Introduction to Technicolor, Part 2"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
After a brief summary of the part on extended technicolor of the first seminar, I
will go on discussing walking technicolor and constraints from electroweak precision tests.

Tue Nov 30, 2010

1:30pm - 2:30pm   Michele Redi (CERN) on "Low Scale Flavor Gauge Symmetries"

Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
Abstract: I will discuss the possibility of gauging the Standard Model flavor group.
Anomaly cancellation leads to the addition of fermions whose mass is inversely proportional to
the known fermion masses. In this case all flavor violating effects turn out to be controlled
roughly by the Standard Model Yukawa, suppressing transitions for the light generations. Due to
the inverted hierarchy the scale of new gauge flavor bosons could be as low as the electroweak
scale without violating any existing bound but accessible at the Tevatron and the LHC. The
mechanism of flavor protection potentially provides an alternative to Minimal Flavor Violation,
with flavor violating effects suppressed by hierarchy of scales rather than couplings.

Seminars Fall 2010

Tue Dec 7, 2010

1:30pm - 2:30pm
Tasos Avgoustidis (DAMTP) on "Constraining Fundamental High-Energy Physics from Cosmological Observations"
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description: ABSTRACT

Fri Dec 10, 2010

3pm - 4pm
Kostas Dimopoulos (Lancaster) on "Contribution of Cosmic Vector Fields to the generation of the Curvature Perturbation in the Universe"
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010

Tue Dec 14, 2010

1:30pm - 2:30pm
Boris Pioline (Jusieu) on "Wall-crossing from Boltzmann Black Holes"
Where: 2nd floor seminar room
Calendar: Seminars Fall 2010
Description:
ABSTRACT: A key question in the study of N=2 supersymmetric string or field theories is to understand the decay of BPS bound states across walls of marginal stability in the space of parameters or vacua. Based on mathematical considerations, Kontsevich and Soibelman (KS) and Joyce and Song (JS) have given two wall-crossing formulae for Donaldson-Thomas invariants, which are believed to be the mathematical embodiment of the index of BPS states. By representing potentially unstable bound states as multi-centered black hole solutions in N=2 supergravity, and by quantizing the resulting phase space, I shall derive two new general and explicit formulae for the change in the (refined) index across the wall, which look rather different from the KS and JS formula but agree in all cases that we have checked.