Constituents, Fundamental Forces and Symmetries of the Universe
3rd RTN Workshop
Valencia, 1–5 October, 2007

CONTRIBUTED TALKS

- **L.F. Alday** (Utrecht U.): *Gluon scattering amplitudes at strong coupling*
(Auditori Joan Plaça, Friday, 10.30).

  Abstract: We describe how to compute planar gluon scattering amplitudes at strong coupling in $N = 4$ super Yang Mills by using the gauge/string duality. Based on arXiv:0705.0303 and work in progress.

- **L. Anguelova** (Utrecht U.): *O'KKLT at finite Temperature*
(Auditori Joan Plaça, Friday, 16.00).

  Abstract: We study whether finite temperature corrections decompactify the internal space in KKLT compactifications with an uplifting sector given by a system that exhibits metastable dynamical supersymmetry breaking. More precisely, we calculate the one-loop temperature corrections to the effective potential of the volume modulus in the KKLT model coupled to the quantum corrected O'Raifeartaigh model. We prove that for the original KKLT model, namely with one exponent in the non-perturbative superpotential, the finite temperature potential is runaway when at zero temperature there is a dS minimum at finite distance in field space. On the other hand, for a non-perturbative superpotential of the race-track type with two exponents, we demonstrate that the temperature-dependent part of the effective potential can have local minima at finite distance. However, rather unexpectedly, it turns out that these minima do not affect the structure of the full effective potential and so the volume modulus is stabilized at the local minimum of the zero temperature potential for the whole range of validity of the supergravity approximation.

- **D. Areán** (Universidade de Santiago de Compostela): *Holographic flavor on the Higgs branch*
(Auditori Joan Plaça, Tuesday, 18.30).

  Abstract: I will present the holographic dual of the Higgs branch of gauge theories in several spacetime dimensions with fundamental matter. In the holographic description the addition of matter is realized by inserting probe branes in the background generated by the color branes where the gauge theory lives. Then, generically, the matter is confined to a defect corresponding to the intersection of the color and flavor (probe) branes. The Higgs branch is obtained by recombining the color and flavor branes. I will show that the holographic dual of this phase is realized by adding extra flux on the flavor branes and appropriately modifying their embedding. In addition, a dielectric interpretation in terms of the color branes, whose vacuum solutions match the F- and D- flatness conditions of the field theory, will be given. Finally, I will comment on the meson mass spectrum, which in most of the cases becomes continuous and gapless.

- **F. Benini** (SISSA, Trieste): *Backreacting Flavors in the Klebanov-Witten Model via D7-branes*
(Auditori Joan Plaça, Friday, 17.50).

  Abstract: Using AdS/CFT, the addition of an arbitrary large number of backreacting flavors to the Klebanov-Witten theory is studied, making many checks of consistency between our new IIB plus branes solutions and expectations from field theory. We study generalizations of our method for adding flavors to all $N = 1$ SCFTs that can be realized on D3-branes at the tip of a CY cone. Moreover general guidelines suitable for the addition of massive backreacting flavor branes are developed. This talk is based on hep-th/0612118.

- **M. Billò** (Università di Torino): *Instanton effects in supersymmetric magnetized D-brane worlds*
(Auditori Joan Plaça, Tuesday, 11.00).

  Abstract: We consider $N = 2$ and $N = 1$ supersymmetric theories defined on wrapped, magnetized D9-branes on toroidal orbifolds, and study instanton effects by introducing suitable Euclidean 5-branes. In particular, we analyze the holomorphicity properties of the instanton-induced prepotentials or superpotentials. In the N=1 case, this leads to an explicit proposal for the Kahler metric of twisted matter.

- **G. Bonelli** (SISSA): *The holomorphic anomaly for open string moduli*
(Sala Cavanilles, Tuesday, 16.40).

  Abstract: We will explain the completion of the holomorphic anomaly equations for topological strings with their dependence on open moduli. This is obtained by standard path integral arguments generalizing the analysis of BCOV (Commun. Math. Phys. 165 (1994) 311) to strings with boundaries. We study both the anti-holomorphic dependence on open moduli and on closed moduli in presence of Wilson lines. By providing the compactification a' la Deligne-Mumford of the moduli space of Riemann surfaces with boundaries, we show that the open holomorphic anomaly equations are structured on the (real codimension one) boundary components of this space.

- **L. Borsten** (Imperial College London): *Black holes and Quantum Information*
(Auditori Joan Plaça, Tuesday, 16.00).

  Abstract: We illustrate some mathematical correspondences relating stringy black hole entropy to quantum information theoretic measures of entanglement.

- **G. Cardoso** (ASC, LMU): *First-order flow equations for extremal black holes*
(Auditori Joan Plaça, Wednesday, 10.30).

  Abstract: We use the connection between five- and four-dimensional extremal black holes to derive first-order flow equations for extremal non-BPS black holes in very special geometry, and we give the associated interpolating solutions.

- **F. Canoura** (University of Santiago de Compostela): *On the M-theory description of supersymmetric gluodynamics*
(Sala Cavanilles, Friday, 17.50).

  Abstract: We study the stringy description of $N = 1$ supersymmetric SU(N) gauge theory on $R^{1,2} \times S^1$. Our description is based on the known Klebanov-Strassler and Maldacena-Nunez solutions, properly modified to account for the compact dimension. The presence of this circle turns out to be a non trivial modification and it leads us to consider the up-lifted eleven dimensional solution. We discuss some of its properties. Perhaps the most interesting one is that extra BPS M-branes are present. These generate a non-perturbative superpotential that we explicitly compute. Our findings, besides their interest in the gauge-string correspondence, may also have applications in the cosmological KKLT and KKLMMT scenarios.

- **M. Cirafici** (University of Patras): *Topics in Donaldson-Thomas theory*
(Sala Cavanilles, Tuesday, 16.20).

  Abstract: I will report on some work in progress on certain aspects of Donaldson-Thomas theory on a local threefold. Donaldson-Thomas invariants arise in the context of the topological string and are physically related to the number of bound states of D0-D2 branes with a single D6 brane. We formulate the theory as a generalized instanton counting problem and comment on its generalization to a non abelian setup (arbitrary number of D6 branes) and to singular varieties.

- **L. Cornalba** (Università di Milano Bicocca): *High energy scattering in AdS/CFT*
(Auditori Joan Plaça, Friday, 11.00).

  Abstract: We analyze high energy scattering in AdS using eikonal techniques, which allow to resum the gravitational loop expansion in certain kinematical regimes. We then reinterpret these results from the CFT perspective, where the eikonal phase shift now computes anomalous dimensions of double trace operators for large spin and energy. Finally we extend these results to include string corrections, connecting to the perturbative BFKL analysis of pomeron exchange at high energies. The talk is based on hep-th/0611122, hep-th/0611123, arXiv:0707.0120 and work to appear.

- **S. Cremonesi** (SISSA/ISAS, Trieste): *Backreacting Flavors in the Klebanov-Strassler Theory: a New Duality Cascade*
(Auditori Joan Plaça, Friday, 18.10).

  Abstract: The addition of supersymmetric backreacting D7-branes to the Type IIB Klebanov-Strassler background allows the study of the dual field theory with an arbitrary number of fundamental flavor fields. We find a supergravity + D7-branes solution and identify the field theory dual, whose RG flow is described by a cascade of Seiberg dualities. We provide several checks of the duality, including beta functions and R-anomalies. A careful study of the cascade is presented.

- **M. Esole** (KU Leuven): *Tadpole conditions in F theory and the Euler characteristic*

of singular varieties
(Sala Cavanilles, Friday, 16.00).

Abstract: The consistency between tadpole conditions in type IIB string theory and F-theory at weak coupling implies some non-trivial relations between Euler characteristics of different varieties. Surprizing enough, at first look these relations are not satisfy for concrete examples of Calabi-Yau compactifications. We show how the presence of singularities are crucial to solve this problem.

- **O. Evnin** (Vrije Universiteit Brussel): *Quantum evolution across singularities*
(Auditori Joan Plaça, Tuesday, 12.00).

  Abstract: Attempts to consider evolution across space-time singularities often lead to quantum systems with time-dependent Hamiltonians developing an isolated singularity (a pole in the simplest cases) as a function of time. Examples include matrix theory in certain singular time-dependent backgounds and free quantum fields on the two-dimensional compactified Milne universe or the parabolic orbifold. Due to the presence of the singularities in the time dependence of the Hamiltonian, the conventional quantum-mechanical evolution is not well-defined for such systems. I'll describe an ongoing project aimed to understand how one can construct a unitary quantum evolution using such Hamiltonians, and what amount of ambiguity this procedure entails.

- **S. Ferrara** (CERN): *NonBPS attractors in diverse dimensions*
(Auditori Joan Plaça, Wednesday, 12.00).

  Abstract: TBA.

- **D. Francia** (Chalmers University of Technology): *Geometric Lagrangians for massive higher-spin fields*
(Auditori Joan Plaça, Thursday, 10.30).

  Abstract: Lagrangians for massive, unconstrained, higher-spin bosons and fermions are proposed. The idea is to modify the geometric, gauge invariant Lagrangians describing the corresponding massless theories by addition of suitable quadratic polynomials. These polynomials provide generalisations of the Fierz-Pauli mass term containing all possible traces of the basic field. No auxiliary fields are needed.

- **C. Fuertes** (IFT, Madrid), *Deconstructing the Little Hagedorn Holography*
(Sala Cavanilles, Tuesday, 18.10).

  Abstract: We will present results concerning the phase diagram of Little String Theory (LST), based on the recent paper arXiv 0707.1158, by JLF Barbon, C.A. Fuertes and E. Rabinovici. We study the thermodynamics through its holographic dual, a critical string theory. This study sheds light in the working of holography of the LST giving hints toward the behaviour of holography in flat spacetimes. We find that the system's bulk radiation plays a dominant role screening the expected Hagedorn behaviour of the theory, unlike the more familiar AdS case. To make sense of the new holographic picture we suggest an embedding of the system into an ultraviolet fixed point with an

AdS description. It is found then that the Hagedorn regime survives in a finite band of superheated states. This is manifest in a first-order phase transition that is driven by the radiative corrections.

- **M.P. García del Moral** (Università di Torino & INFN): $N = 1$ *4D Supermembrane with central charges*
(Sala Cavanilles, Friday, 16.40).

  Abstract: I will present the action of the 4D quantum supermembrane with central charges in 4D. It posseses $N = 1$ supersymmetries. Its classical and quantum spectral properties will be briefly analysed. Some physical aspects will be discussed.

- **I. García-Etxebarría** (IFT-Madrid): *Non-supersymmetric meta-stable vacua from brane configurations*
(Sala Cavanilles, Friday, 16.20).

  Abstract: I will describe configurations of NS, D4 and D6 branes realizing the ISS metastable vacua in string theory, and some generalizations containing orientifolds, such as SO/Sp theories and theories with matter in two index representations.

- **M. Gómez-Reino** (CERN): *Metastable vacua with F and D supersymmetry breaking in general supergravity theories*
(Auditori Joan Plaça, Friday, 12.30).

  Abstract: Finding vacua of 4D $N = 1$ effective supergravity theories in which supersymmetry is spontaneously broken is an important issue for many different reasons (phenomenological as well as theoretical). In this talk I will first review when a generic supergravity model involving chiral and vector multiplets can admit phenomenologically viable metastable vacua with spontaneously broken supersymmetry and realistic cosmological constant. I will then show how the existence of such vacua implies strong necessary conditions on the theory. These conditions constrain the Kahler curvature for the scalar geometry and the charge and mass matrices for the vector fields. They also imply that (for given curvature, charges and masses satisfying this constraint,) the vector of F and D auxiliary fields is constrained to lie within a certain domain. I will finally discuss the relevance and implications of these general results on the effective theories arising from string compactifications.

- **J. Gunnesson** (IFT, Madrid): *Star-Triangle relation in AdS/CFT*
(Auditori Joan Plaça, Tuesday, 17.50).

  Abstract: Recently, the integrable structures found in planar $N = 4$ SYM and its string theory dual have shed a great deal of light on the AdS/CFT-correspondance. In this talk, I will explain how a star-triangle relation encodes the integrability of the model and demonstrate some consequences.

- **T. Harmark** (Niels Bohr Institute, Copenhagen): *Phase structure of Higher-Dimensional Black Rings and Black Holes*

(Auditori Joan Plaça, Tuesday, 16.20).

Abstract: We construct an approximate solution for an asymptotically flat, neutral, thin rotating black ring in any dimension $D \geq 5$ by matching the near-horizon solution for a bent boosted black string, to a linearized gravity solution away from the horizon. The rotating black ring solution has a regular horizon of topology $S^1 \times S^{D-3}$ and incorporates the balancing condition of the ring as a zero-tension condition. For $D = 5$ our method reproduces the thin ring limit of the exact black ring solution. For $D \geq 6$ we show that the black ring has a higher entropy than the Myers-Perry black hole in the ultra-spinning regime. By exploiting the correspondence between ultra-spinning black holes and black membranes on a two-torus, we take steps towards qualitatively completing the phase diagram of rotating blackfolds with a single angular momentum. We are led to propose a connection between MP black holes and black rings, and between MP black holes and black Saturns, through merger transitions involving two kinds of 'pinched' black holes. More generally, the analogy suggests an infinite number of pinched black holes of spherical topology leading to a complicated pattern of connections and mergers between phases.

- **J. Hartong** (Groningen U.): *Q-branes in IIB supergravity*
(Auditori Joan Plaça, Thursday, 11.00).

  Abstract: Recent studies of IIB 7-branes indicate that the spectrum of 1/2 BPS states of (p, q)-branes in type IIB supergravity allows generalization to so-called (p, q, r)-branes or Q-branes for short. This idea has so far been restricted to 7-branes (and their electric partner the instantons) but seems to apply also to the case of strings. In this talk recent results on the study of Q7-branes will be reviewed and the possible existence of 1/2 BPS Q1-branes or Q-strings will be discussed.

- **O. Hohm** (University of Groningen): *Higher-spin dynamics and Chern-Simons theories*
(Sala Cavanilles, Tuesday, 18.30).

  Abstract: I report on work about the problem of constructing higher-spin theories that are consistently coupled to gravity. Specifically, certain forms of Lovelock gravity in odd dimensions can be viewed as Chern-Simons theories based on AdS groups. Extending these AdS groups to the higher-spin algebras of Vasiliev, gives rise to consistent higher-spin extensions of Lovelock gravity. In spite of their topological origin, these theories possess 'non-topological' backgrounds, around which a propagation takes place. As an example, we consider an $AdS_4 \times S^1$ Kaluza-Klein background of the theory in $D = 5$ and show that in the linearization the theory reproduces the correct free field limit – namely the Fronsdal equations on AdS_4. To this end we show that the geometrical higher-derivative equations, which naturally appear in higher-spin theories, can be locally integrated to second-order equations via the so-called Damour-Deser identities, whose extension to arbitrary spin and AdS we establish.

- **P. Koerber** (Max-Planck-Institut für Physik, München): *From ten to four and back again: how to generalize the geometry*
(Auditori Joan Plaça, Tuesday, 17.30).

Abstract: We discuss the four-dimensional $N = 1$ effective approach in the study of warped type II flux compactifications with $SU(3) \times SU(3)$-structure to AdS_4 or flat Minkowski space-time. The non-trivial warping makes it natural to use a supergravity formulation invariant under local complexified Weyl transformations. We obtain the classical superpotential from a standard argument involving domain walls and generalized calibrations and show how the resulting F-flatness and D-flatness equations exactly reproduce the full ten-dimensional supersymmetry equations. Furthermore, we consider the effect of non-perturbative corrections to this superpotential arising from gaugino condensation or Euclidean D-brane instantons. For the latter we derive the supersymmetry conditions in $N = 1$ flux vacua in full generality. We find that the non-perturbative corrections induce a quantum deformation of the internal generalized geometry. Smeared instantons allow to understand KKLT-like AdS vacua from a ten-dimensional point of view. On the other hand, non-smeared instantons in IIB warped Calabi-Yau compactifications 'destabilize' the Calabi-Yau complex structure into a genuine generalized complex one. This deformation gives a geometrical explanation of the non-trivial superpotential for mobile D3-branes induced by the non-perturbative corrections.

- **C. Kounnas** (LPT Ecole Normale Suprieure): *Inflationary de Sitter solutions* (Auditori Joan Plaça, Wednesday, 16.00).

  Abstract: In the framework of superstring compactifications with spontaneously broken supersymmetry we show the existence of new inflationary solutions.

- **D. Krefl** (MPI & LMU Munich): *Dimers and Orientifolds* (Sala Cavanilles, Tuesday, 17.50).

  Abstract: New techniques based on brane tilings to investigate D3-branes probing orientifolds of toric Calabi-Yau singularities will be introduced. With these new tools, one can write down many orientifold models and derive the resulting low-energy gauge theories living on the D-branes. Using this set of ideas, one recovers essentially all orientifolded theories known so far. Furthermore, new orientifolds of non-orbifold toric singularities are obtained. The possible applications of the tools presented are diverse. One particular application is the construction of models which feature dynamical supersymmetry breaking as well as the computation of D-instanton induced superpotential terms.

- **C. Maccaferri** (ULB, Brussels): *New vortices in noncommutative gauge theory* (Sala Cavanilles, Tuesday, 17.50).

  Abstract: We present new solutions of noncommutative gauge theory, in which coincident vortices expand into circular shells. As the theory is noncommutative, the naive definition of the locations of the vortices and shells is gauge-dependent, and so we define and calculate the profiles of these solutions using the gauge-invariant noncommutative Wilson lines introduced by Gross and Nekrasov. We find that charge 2 vortex solutions are characterized by two positions and a single nonnegative real number, which we demonstrate is the radius of the shell. We find that the radius is identically zero

in all 2-dimensional solutions. If one considers solutions that depend on an additional commutative direction, then there are time-dependent solutions in which the radius oscillates, resembling a braneworld description of a cyclic universe. There are also smooth BIon-like space-dependent solutions in which the shell expands to infinity, describing a vortex ending on a domain wall.

- **O. Mac Conamhna** (Imperial College London): *Singularity resolution by M-theory fivebranes: Anti-de Sitter solutions of M-theory and new special holonomy metrics*
(Auditori Joan Plaça, Friday, 16.40).

  Abstract: In this talk, based on arXiv:0706.1795 and 0708.2568, I will discuss the geometry of nine known supersymmetric AdS solutions of M-theory, which describe the near-horizon limit of M-fivebranes wrapped on nine distinct types of calibrated cycles in special holonomy manifolds. Introducing a careful definition of the notion of an interpolating supergravity solution, I will construct nine new explicit special holonomy metrics, each with an appropriate calibrated cycle, which are proposed as the special holonomy metrics on which the fivebranes are wrapped. The special holonomy metrics are all singular, and are hyperbolic analogues of known metrics, which are: Eguchi-Hanson; the deformed and resolved conifolds; the four-fold resolved conifold, and the Stenzel four-fold metric; the Calabi Sp(2) metric on T^*CP^2; the Bryant-Salamon-Gibbons-Page-Pope G_2 metrics on an R^3 bundle over S^4 or CP^2, and an R^4 bundle over over S^3; and the BSGPP Spin(7) metric on an R^4 bundle over S_4. These results motivate the following conjectures, which will be discussed in the talk: (1) Every supersymmetric AdS solution of ten or eleven dimensional supergravity can be smoothly mapped to a special holonomy metric; (2) with the exception of flat space, every such special holonomy metric is incomplete; (3) to every such incomplete special holonomy manifold a CFT can be associated, and defines the quantum gravitational physics of the resolution of its singularity.

- **S. McReynolds** (University of Milan-Bicocca): *Supergravity on a spacetime with boundary*
(Sala Cavanilles, Tuesday, 16.00).

  Abstract: Higher dimensional theories on spacetimes with boundaries are of interest for building models beyond the Standard Model. I discuss some of the features and requirements of supergravity in such a scenario.

- **R. Olea** (INFN Sezione di Milano): *Universal Kounterterms in Lovelock AdS gravity*
(Sala Cavanilles, Friday, 18.10).

  Abstract: Lovelock gravity is the generalization to higher dimensions of two basic features of Einstein-Hilbert action: general covariance and second order field equations. Whenever cosmological constant is introduced, one faces the problem of regularization of both the Euclidean action and conserved quantities. We show the universal form of the boundary term (Kounterterm series) that provides a finite action principle for any Lovelock theory with AdS asymptotics (including Einstein-Hilbert and Einstein-Gauss-Bonnet) and we stress the connection to topological invariants and Chern-Simons

densities.

- **M. Petropoulos** (CPHT-Ecole Polytechnique): *Axionic symmetry gaugings in $N = 4$ supergravities*
(Auditori Joan Plaça, Tuesday, 12.30).

  Abstract: I will analyze the class of four-dimensional $\mathcal{N} = 4$ supergravities obtained by gauging the axionic shift and axionic rescaling symmetries. I will formulate these theories using the machinery of embedding tensors and show that they can be deduced from higher dimensions by a Scherk–Schwarz reduction with a twist with respect to a non-compact symmetry. This allows to evade the usual unimodularity requirement and completes the dictionary between heterotic gaugings and fluxes, at least for the "geometric sector".

- **M. Pirrone** (Università di Milano-Bicocca): *Mesons in marginally deformed AdS/CFT*
(Auditori Joan Plaça, Tuesday, 18.30).

  Abstract: We study the embedding of a spacetime filling D7-brane in beta-deformed backgrounds which corresponds to flavoring marginally deformed $N = 4$ SYM. We consider supersymmetric and more general non-supersymmetric three parameter deformations. In both cases we manage to solve analytically the equations of motion for quadratic fluctuations of the D7 and find the spectrum of scalar and vector mesons. Finally we propose the action for the dual field theory.

- **S. Shatashvili** (Trinity College Dublin and IHES): *Gauge theories and quantum groups*
(Auditori Joan Plaça, Tuesday, 10.30).

  Abstract: Relaton between Bethe Ansatz equation and exact answers in supersymmetric gauge theories via localization technique will be discussed.

- **P.J. Silva** (Universitat de Barcelona & and IFAE-ICE): *Euclidean Methods and the entropy function*
(Auditori Joan Plaça, Tuesday, 16.40).

  Abstract: The attractor mechanism implies that the supersymmetric black hole (BH) near horizon (NH) solution is defined in terms of the conserved charges only and therefore is independent of asymptotic moduli. In these NH geometries, Sen recovered the BH entropy by means of a Legendre transformation where the electric fields are defined as conjugated variables to the electric charges. There is however another way to define the entropy and in general the "statistics mechanics of BPS BH" using a multi-scaling limit of non-extremal BH. This is an Euclidean formalism where direct contact with the dual field theory formulation (that motivates it) and also with the canonical BH thermodynamics is transparent and natural. In this talk we make contact between these two different approaches giving a precise match between the corresponding statistical potentials conjugated to the charges, the Euclidean action and the entropy. In particular Sen's results are recovered from the quantum statistical relation of BH thermodynamics where the role of the attractor mechanism is crucial. An important novel result is the

realization of the connection between the Entropy function formalism and the Euclidean action. Our analysis is carried on for asymptotically flat and AdS BHs, as well as for supersymmetric and extreme non-BPS BHs.

- **C. Sochichiu** (INFN-Laboratori Nazionali di Frascati): *Dilatation operator*
(Auditori Joan Plaça, Friday, 16.20).

  Abstract: Perturbative construction for dilatation operator in a renormalizable theory is presented. The on-loop order is discussed in details.

- **G. Tartaglino-Mazzucchelli** (University of Western Australia): *Towards 5D curved projective superspace*
(Sala Cavanilles, Friday 17.30).

  Abstract: The first part of the talk is devoted to a review of some recent results on field theories in five-dimensional $N = 1$ anti-de Sitter superspace ($AdS^{5|8}$) obtained in collaboration with S. M. Kuzenko. We describe the differential geometry of $AdS^{5|8}$, off-shell supermultiplets, and the construction of supersymmetric actions in projective superspace. We conclude by presenting some results to appear on the formulation of projective superspace techniques for 5D minimal supergravity.

- **D. Van den Bleeken** (ITF KULeuven): *Black Hole Deconstruction*
(Auditori Joan Plaça, Wednesday, 11.00).

  Abstract: A D4-D0 black hole can be deconstructed into a bound state of D0 branes with a D6-anti-D6 pair containing worldvolume fluxes. The exact spacetime solution is known and resembles a D0 accretion disk surrounding a D6-anti-D6 core. We find a scaling limit in which the disk and core drop inside an AdS_2 throat. Crossing this AdS_2 throat and the D0 accretion disk into the core, we find a second scaling region describing the D6-anti-D6 pair. It is shown that the M-theory lift of this region is $AdS_3 \times S^2$. Surprisingly, time translations in the far asymptotic region reduce to global, rather than Poincaré, time translations in this core AdS_3. We further find that the quantum mechanical ground state degeneracy reproduces the Bekenstein-Hawking entropy-area law.

- **P. Vanhove** (CEA/Saclay): *Non-renormalisation theorems in maximally supersymmetric theories*
(Auditori Joan Plaça, Friday, 12.00).

  Abstract: TBA.

- **O. Varela** (Imperial College London): *Consistent Kaluza-Klein reductions and supersymmetric AdS solutions.*
(Auditori Joan Plaça, Wednesday 12.30).

  Abstract: We provide evidence for the conjecture that for any supersymmetric solution of $D = 10$ or $D = 11$ supergravity consisting of a warped product of d-dimensional

anti-de-Sitter space with a Riemannian manifold M, there is a consistent Kaluza-Klein reduction on M to a gauged supergravity theory in $d+1$-dimensions for which the fields are dual to those in the superconformal current multiplet of the d-dimensional dual SCFT. This means that any solution of the gauged supergravity theory can be uplifted on M to obtain an exact solution of $D = 10$ or $D = 11$ supergravity. Based on hep-th/0611219 and arXiv:0707.2315.

- **A. Wijns** (University of Iceland): *World-sheet description of A and B branes revisited* (Auditori Joan Plaça, Friday, 17.30).

  Abstract: We give a manifest supersymmetric description of A and B branes on Kaehler manifolds using a completely local $N = 2$ superspace formulation of the world-sheet nonlinear sigma-model in the presence of a boundary. In particular, we show that an $N = 2$ superspace description of type A boundaries is possible. This leads to a quite elegant and concrete setting for studying coisotropic A branes. Duality transformations relating A and B branes in the presence of isometries are studied as well.