

TH Institute on String Phenomenology

Report of Contributions

Contribution ID: 0

Type: **not specified**

C. Vafa: "F-theory Meets Phenomenology"

Tuesday, 29 July 2008 14:00 (1 hour)

TBA

Primary author: VAFA, Cumrun (Harvard University)

Track Classification: W2

Contribution ID: 1

Type: **not specified**

J. Louis: "Compactifications on Generalized Geometries"

Monday, 21 July 2008 14:00 (30 minutes)

I review compactifications on manifolds with $SU(3)$ and $SU(3) \times SU(3)$ structure emphasising the structure of the low energy effective action.

Primary author: LOUIS, Jan (University of Hamburg)

Track Classification: W1

Contribution ID: 2

Type: **not specified**

K. Becker: "Torsional heterotic geometries"

Tuesday, 22 July 2008 14:00 (30 minutes)

We construct some new examples of torsional heterotic backgrounds using duality with orientifold flux compactifications. We then explain how duality provides a solution to the heterotic string Bianchi identity which is an equation of Monge-Ampere type. Finally, we propose the existence of a much larger class of compact torsional geometries based on intuition from string duality.

Primary author: BECKER, Katrin (Texas A&M)

Track Classification: W1

Contribution ID: 3

Type: **not specified**

P. G. Camara: "Torsion induced soft-breaking terms"

Tuesday, 22 July 2008 14:30 (30 minutes)

We discuss the conditions for having no-scale solutions of type IIA and IIB supergravity compactified on orientifolds with SU(3) structure. Supersymmetry is spontaneously broken at tree-level by the effect of the intrinsic torsion. The torsion induced mu-terms in the world-volume of D5, D6 and D9-branes are presented for the particular case of twisted-tori, and the arising patterns of soft-terms are discussed for pure moduli mediation.

Primary author: CAMARA, Pablo G. (Ecole Polytechnique, Paris)

Track Classification: W1

Contribution ID: 4

Type: **not specified**

D. Lust: "The Landscape of String Theory: Intersecting branes (statistics and collider signatures) and AdS flux vacua

Wednesday, 23 July 2008 14:00 (1 hour)

It is known that the number of ground states is very big. This landscape of string vacua contains intersecting brane constructions as well as flux vacua. We will review some of the properties of intersecting branes, like their statistics and possible signatures at the LHC collider. At the end of the talk we are planning to discuss anti-de Sitter flux vacua and transitions between different string vacua by domain walls.

Primary author: LUST, Dieter (LMU and MPI, Munich)

Track Classification: W1

Contribution ID: 5

Type: **not specified**

M. Douglas: "Landscape, low energy supersymmetry, and warping"

Wednesday, 13 August 2008 14:00 (1 hour)

A very central question in phenomenology is, what mechanism solves the hierarchy problem. For a long time the only generally accepted solution was low energy supersymmetry. In recent years, other solutions inspired by string theory have been suggested, such as large extra dimensions and warping.

Even more recently, the idea that string theory contains a large landscape of solutions, enabling the anthropic solution to the cosmological constant problem, raises the possibilities that the naturalness considerations which prefer some mechanisms over others are modified in string theory, or even that the hierarchy is not the result of a mechanism.

We discuss the status of these claims, give a general overview of current thinking about how low energy susy, large extra dimensions and warping can be realized in string compactification, and raise questions whose answers would help us decide whether string theory favors any of these alternatives.

Primary author: DOUGLAS, Michael (Simons Center / Rutgers/ IHES)

Track Classification: W4

Contribution ID: 6

Type: **not specified**

A. Micu: "String dualities and manifolds with SU(3) structure"

Monday, 21 July 2008 14:30 (30 minutes)

In this talk I will concentrate on the Heterotic - Type IIA duality when fluxes are turned on. I will show that in a specific case the duality involves M-theory rather than type IIA strings. For this case I will show the construction on the M-theory side which is dual to the heterotic compactifications on $K3 \times T^2$ when gauge field fluxes along the torus are considered.

Primary author: MICU, Andrei (Univ. Bonn)

Track Classification: W1

Contribution ID: 7

Type: **not specified**

R. Blumenhagen: "Instantons in N=1 string compactifications"

Monday, 28 July 2008 14:00 (30 minutes)

In the first part an overview about recent developments on D-brane instantons effects in N=1 string compactifications is given. In the second part new effects based on so-called poly instantons are proposed.

Primary author: BLUMENHAGEN, Ralph (MPI, Munich)

Track Classification: W2

Contribution ID: 9

Type: **not specified**

E. Dudas: "Multi-instanton and one-loop string corrections in toroidal orbifold models"

Monday, 28 July 2008 14:30 (30 minutes)

We analyze N=2 perturbative and non-perturbative corrections in type I orbifold models where a dual heterotic description is available. We consider in particular the Bianchi-Sagnotti-Gimon-Polchinski orbifold. By exploiting perturbative calculations of the physical gauge couplings on the heterotic side, we obtain multi-instanton and one-loop string corrections to the Kahler potential and the gauge kinetic function. We argue that these corrections are universal in a given class of models where target-space modular invariance holds.

Primary author: DUDAS, Emilian (Ecole Polytechnique and U. Paris-Sud, Orsay)

Track Classification: W2

Contribution ID: 10

Type: **not specified**

A. Wingerter: "Orbifolds, the Standard Model, and Unification"

Wednesday, 30 July 2008 10:00 (30 minutes)

We first highlight some of the (theoretical) shortcomings of the Standard Model, and then consider hints at physics beyond the electroweak scale. Grand Unification and theories in extra dimensions are motivated, and string orbifolds are introduced as ultraviolet completions of these theories. We present a general search strategy for MSSM-like models based on a local $SO(10)$ Grand Unified Theory. The results of our search include 15 models with (i) 3 families of quarks and leptons, (ii) only vectorlike exotics that decouple along D- and F-flat directions, (iii) an exact R-parity, (iv) non-trivial Yukawa matrices, (v) mass hierarchies. Going beyond the "mini-landscape", we answer the question whether the requirement of 3 generations necessarily implies an $SO(10)$ structure. We investigate whether the low-energy values of the coupling constants are compatible with gauge coupling/gravity unification in the heterotic orbifold setup. [Based on arXiv:0706.0217, arXiv:0708.2691, arXiv:0710.4924, arXiv:0805.4186]

Track Classification: W2

Contribution ID: 12

Type: **not specified**

K. Choi: "Some features of soft terms in flux compactification"

Monday, 4 August 2008 14:00 (30 minutes)

I discuss some features of soft SUSY breaking terms in flux compactification, which include flavor and CP conserving modulus mediation, sequestered uplifting, and the effect of anomalous U(1) symmetry.

Primary author: CHOI, Kiwoon (KAIST, Korea)

Track Classification: W3

Contribution ID: 13

Type: **not specified**

H.-P. Nilles: "The Gaugino Code"

Monday, 4 August 2008 14:30 (30 minutes)

Gauginos might play a crucial role in the search for supersymmetry at the Large Hadron Collider (LHC). Mass predictions for gauginos are rather robust and often related to the values of the gauge couplings. We analyse the ratios of gaugino masses in the LHC energy range for various string theories and various schemes of supersymmetry breakdown and mediation. Three distinct mass patterns emerge.

Primary author: NILLES, Hans Peter (Univ. Bonn)

Track Classification: W3

Contribution ID: 14

Type: **not specified**

B. Ovrut: "Ricci-Flat Metrics and Scalar Laplacians on Calabi-Yau Threefolds"

Tuesday, 5 August 2008 14:00 (30 minutes)

A mathematical/numerical algorithm is presented for computing Ricci-flat metrics on Calabi-Yau threefolds. This will be explicitly applied to quintics, Z_5XZ_5 quotients of quintics as well as to the Z_3XZ_3 threefold of the Heterotic Standard Model. Using these metrics, a procedure is given for explicitly calculating the eigenvalue/eigenfunction spectrum of the scalar Laplacian on these Calabi-Yau threefolds.

Primary author: OVRUT, Burt (UPenn)

Track Classification: W3

Contribution ID: 15

Type: **not specified**

S. de Alwis: "Supersymmetry breaking models and String theory constraints"

Tuesday, 5 August 2008 14:30 (30 minutes)

A consistent theory of supersymmetry breaking must have a hidden sector an observable sector and must be embedded in a locally supersymmetric theory which arises from string theory. For phenomenological reasons it must also transmit supersymmetry from the hidden to the visible sector in a dominantly flavor neutral manner. Also any such theory of supersymmetry breaking has to take into account the problem of quadratic divergences which arise once the theory is embedded in supergravity. A model which incorporates all these features with just the bare minimum of necessary supergravity/string theory moduli fields coupled to the minimally supersymmetric standard model, is presented. Every other model has either an extra sector or more fine-tuning or both.

Primary author: DE ALWIS, Shanta (U. Colorado)

Track Classification: W3

Contribution ID: 16

Type: **not specified**

A. Maharana: "Isometries and Approximate Flavor Symmetries in Local Models"

Wednesday, 6 August 2008 10:00 (30 minutes)

We shall present a mechanism to generate flavor symmetries in local D-brane constructions. The key ingredient shall be approximate isometries of the local geometry. We shall discuss our findings in the context of general arguments for the absence of continuous global symmetries in string compactifications. Implications of the mechanism for the Large Volume Scenario for moduli stabilization will be discussed briefly.

Track Classification: W3

Contribution ID: 17

Type: **not specified**

P. Kumar: "Connecting the LHC with underlying theories"

Wednesday, 6 August 2008 10:30 (30 minutes)

The talk will discuss some issues in trying to connect underlying theories with data at the LHC; in particular the challenges and the opportunities therein.

Track Classification: W3

Contribution ID: **18**

Type: **not specified**

G. Villadoro: "Status of D6-brane flux models and their effective field theories"

Monday, 11 August 2008 14:00 (30 minutes)

Primary author: VILLADORO, Giovanni

Track Classification: W4

Contribution ID: 19

Type: **not specified**

S. Raby: "A Fertile Patch in the Heterotic Landscape"

Monday, 11 August 2008 14:30 (30 minutes)

This talk is a follow-up to the talk of Akin Wingerter. I will focus on some of the phenomenological details of one benchmark model discussed in 0708.2691[hep-th].

Primary author: RABY, Stuart (Ohio State U.)

Track Classification: W4

Contribution ID: 20

Type: **not specified**

J. Gray: "Uses and methodology of the STRINGVACUA Mathematica package"

Tuesday, 12 August 2008 14:00 (30 minutes)

I will discuss various applications of the subject of algorithmic algebraic geometry to string phenomenology. In particular i will demonstrate some of the functionality of the recently released STRINGVACUA mathematica package, which facilitates the use of such methods for physicists in our field. Examples will include the analysis of flux vacua and computing Yukawa couplings in smooth, non-standard embedded heterotic compactifications. At the request of some of the participants here, I shall attempt to focus, to some extent, on how these methods actually work rather than providing a comprehensive list of what they can do.

Primary author: GRAY, James (Oxford U.)

Track Classification: W4

Contribution ID: 21

Type: **not specified**

B. Schellekens: "Topics in RCFT orientifolds"

Tuesday, 12 August 2008 14:30 (30 minutes)

A large set of exact string spectra can be explored using orientifolds of rational conformal field theories. Several results will be discussed, including a variety of ways of realizing the standard model, distributions of physical quantities, free fermionic constructions, neutrino masses and non-supersymmetric, tachyon-free spectra.

Primary author: SCHELLEKENS, Bert (NIKHEF)

Track Classification: W4

Contribution ID: 22

Type: **not specified**

W. Taylor: "Cosmology and particle physics in the type IIA landscape"

Thursday, 24 July 2008 14:00 (30 minutes)

The apparently vast landscape of stable and metastable solutions to string theory raises the possibility that string theory may be able to reproduce virtually any reasonable low-energy theory. We describe one corner of the string landscape (IIA) where it seems that the range of possible cosmological models may be more constrained than particle physics.

Track Classification: W1

Contribution ID: 23

Type: **not specified**

G. Shiu: "UV Physics and String Inflation"

Thursday, 24 July 2008 14:30 (30 minutes)

Inflation has become the standard paradigm of early universe cosmology. Several outstanding questions in inflationary cosmology, however, require an understanding of the underlying UV physics. In this talk, I will discuss some of these issues and argue how one might turn these UV sensitivities into observational opportunities for string inflation.

Track Classification: W1

Contribution ID: 24

Type: **not specified**

Welcome coffee

Monday, 21 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to welcome participants just arriving, and to discuss informally

Track Classification: W1

Contribution ID: 25

Type: **not specified**

Welcome coffee

Monday, 28 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to welcome participants just arriving, and to discuss informally

Track Classification: W2

Contribution ID: 26

Type: **not specified**

Welcome coffee

Monday, 4 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to welcome participants just arriving, and to discuss informally

Track Classification: W3

Contribution ID: 27

Type: **not specified**

Welcome coffee

Monday, 11 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to welcome participants just arriving, and to discuss informally

Track Classification: W4

Contribution ID: **28**

Type: **not specified**

Morning coffee

Tuesday, 22 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W1

Contribution ID: 29

Type: **not specified**

Morning coffee

Wednesday, 23 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W1

Contribution ID: **30**

Type: **not specified**

Morning coffee

Thursday, 24 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W1

Contribution ID: **31**

Type: **not specified**

Morning coffee

Friday, 25 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W1

Contribution ID: **32**

Type: **not specified**

Morning coffee

Tuesday, 29 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W2

Contribution ID: **33**

Type: **not specified**

Morning coffee

Wednesday, 30 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W2

Contribution ID: **34**

Type: **not specified**

Morning coffee

Thursday, 31 July 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W2

Contribution ID: 35

Type: **not specified**

Morning coffee

Friday, 1 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W2

Contribution ID: **36**

Type: **not specified**

Morning coffee

Tuesday, 5 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W3

Contribution ID: 37

Type: **not specified**

Morning coffee

Wednesday, 6 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W3

Contribution ID: **38**

Type: **not specified**

Morning coffee

Thursday, 7 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W3

Contribution ID: 39

Type: **not specified**

Morning coffee

Friday, 8 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W3

Contribution ID: 40

Type: **not specified**

Morning coffee

Tuesday, 12 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W4

Contribution ID: 41

Type: **not specified**

Morning coffee

Wednesday, 13 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W4

Contribution ID: 42

Type: **not specified**

Morning coffee

Thursday, 14 August 2008 11:00 (1 hour)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W4

Contribution ID: 43

Type: **not specified**

Morning coffee

Friday, 15 August 2008 11:30 (30 minutes)

We meet at 11:00h in the discussion room in front of the TH Secretariat (building 4, second floor), to discuss informally over coffee.

Track Classification: W4

Contribution ID: 44

Type: **not specified**

M. Cvetič: "A string theoretic model of gauge mediated supersymmetry breaking"

Wednesday, 30 July 2008 10:30 (30 minutes)

Guided by modern String Theory We propose a robust supergravity model of dynamical supersymmetry breaking and gauge mediation. The Polonyi field (and its mirror) is a chiral field, charged under

"anomalous" $U(1)$'s, with hierarchical Polonyi-term which can be generated by string instantons, and quartic superpotential terms which arise naturally as a tree-level decoupling effect of massive string states.

A stable supersymmetry breaking minimum allows for the realisation of gauge mediation with soft supersymmetry breaking masses at the TeV scale which we realise for a globally consistent $SU(5)$ GUT model of Type I string theory, with an D1-instanton inducing the Polonyi term.

Track Classification: W2

Contribution ID: 45

Type: **not specified**

Discussion Coffee

Monday, 21 July 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W1

Contribution ID: 46

Type: **not specified**

Discussion Coffee

Tuesday, 22 July 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W1

Contribution ID: 47

Type: **not specified**

Discussion Coffee

Wednesday, 23 July 2008 15:00 (30 minutes)

The TH group meets in the discussion room after the colloquium to continue discussion in an informal atmosphere.

Track Classification: W1

Contribution ID: 48

Type: **not specified**

Discussion Coffee

Thursday, 24 July 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W1

Contribution ID: 50

Type: **not specified**

Discussion Coffee

Monday, 28 July 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W2

Contribution ID: 51

Type: **not specified**

Discussion Coffee

Tuesday, 29 July 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W2

Contribution ID: 52

Type: **not specified**

Discussion Coffee

Monday, 4 August 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W3

Contribution ID: 53

Type: **not specified**

Discussion Coffee

Tuesday, 5 August 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W3

Contribution ID: 54

Type: **not specified**

Discussion Coffee

Monday, 11 August 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W4

Contribution ID: 55

Type: **not specified**

Discussion Coffee

Tuesday, 12 August 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W4

Contribution ID: 56

Type: **not specified**

Discussion Coffee

Wednesday, 13 August 2008 15:00 (30 minutes)

We meet in the discussion room after the seminars to continue discussion in an informal atmosphere.

Track Classification: W4

Contribution ID: 57

Type: **not specified**

M. Gomez-Reino: "dS vacua and modular inflation in N=1 supergravity and string theory"

Friday, 25 July 2008 10:30 (30 minutes)

I will discuss the possibility of obtaining vacua with spontaneously broken supersymmetry and non-negative cosmological constant in the moduli sector of string models, as well as the possibility of realising slow-roll inflation. I will show that there exist some simple conditions for this to happen which depend only on the Kahler potential. I will then analyse the implications of these conditions through some examples.

Primary author: GOMEZ-REINO PEREZ, Marta (Unknown)

Track Classification: W1

Contribution ID: 58

Type: **not specified**

B. Acharya: "Non-thermal Dark Matter and Moduli/Gravitino Problems in M theory"

Friday, 25 July 2008 10:00 (30 minutes)

TBA

Primary author: ACHARYA, Bobby (Unknown)

Track Classification: W1

Contribution ID: 59

Type: **not specified**

F. Gmeiner: "Millions of Standard Models on Z_6 '?"

Thursday, 7 August 2008 10:30 (30 minutes)

I discuss recent results obtained in collaboration with Gabriele Honecker (arXiv:0806.3039 [hep-th]) on a statistical analysis of standard model-like compactifications on the T^6/Z_6 orbifold in the context of intersecting brane models of type II string theory. In particular the structure of the hidden sector, the gauge coupling constants and chiral exotic matter content is discussed. It turns out that the number of chiral exotics, Higgses and values of gauge couplings are strongly correlated.

Primary author: GMEINER, Florian (NIKHEFF)

Track Classification: W3

Contribution ID: 60

Type: **not specified**

M. Schulz: "String Junctions, Abelian Fibrations, and Flux/Geometry Duality"

Thursday, 31 July 2008 10:30 (30 minutes)

The simplest class of flux compactifications, type IIB toroidal orientifolds with $N=2$ flux, is dual to a class of purely geometric IIA Calabi-Yau compactifications with no flux. Since the duality relates warped and nonwarped compactifications, it has the potential to teach us how to define warped Kaluza-Klein reduction, for which we do not yet have a satisfactory definition. The duality also maps D3 instantons to worldsheet instantons, so it furnishes a check on our understanding of instanton calculus. As a step toward these goals, I will discuss aspects of the duality recently explored in collaboration with Donagi and Gao. The first is an analog of F-theory for T^4 fibrations, which is useful for encoding the dual CY geometry. The second is an analog of D(imensional) duality that relates the CYs to auxiliary surfaces that are simpler to study. As a byproduct, we learn how to construct new Calabi-Yau manifolds with nontrivial fundamental group, which should be useful for heterotic model building.

Primary author: SCHULZ, Michael (Bryn Mawr College)

Track Classification: W2

Contribution ID: 61

Type: **not specified**

R. Tatar: "New Aspects of Heterotic- F theory duality"

Thursday, 31 July 2008 10:00 (30 minutes)

The duality between the Heterotic and F-theory is a powerful tool in gaining more insights into F-theory description of low-energy chiral multiplets. Because chiral multiplets from bundles $\wedge^2 V$ and $\wedge^2 V^*$ as well as those from a bundle V are all involved in Yukawa couplings in Heterotic compactification, we need to translate descriptions of all those kinds of matter multiplets into F-theory language through the duality. We find that chiral matter multiplets in F-theory are global holomorphic sections of line bundles on what we call covering matter curves. The covering matter curves are formulated in Heterotic theory in association with normalization of spectral surface, while they are where M2-branes wrapped on a vanishing two-cycle propagate in F-theory.

Primary author: TATAR, Radu (U. Liverpool)

Track Classification: W2

Contribution ID: 62

Type: **not specified**

V. Braun: "Heterotic Model Building"

Friday, 1 August 2008 10:00 (30 minutes)

I will survey some aspects of geometric compactifications of heterotic strings and their low-energy phenomenology. In particular, I will focus on heterotic "non-standard embeddings". First, I will try to give a brief overview over the role of vector bundles in that construction, and how they can be constructed. Using our "heterotic standard model", I will discuss how the spectrum and Yukawa textures arise.

One observation is that not all possible superpotential terms are actually present in such compactifications. For example, I will consider a particular model with one excess Higgs-Higgs conjugate pair. It turns out that flavor-changing neutral currents are greatly suppressed.

Primary author: BRAUN, Volker (UPenn)

Track Classification: W2

Contribution ID: 63

Type: **not specified**

M. Trapletti: "Toric resolution of Heterotic orbifolds"

Thursday, 7 August 2008 10:00 (30 minutes)

We describe how to reproduce a large class of heterotic orbifold models as compactifications of 10d SUGRA on smooth manifolds in the presence of gauge fluxes. We show how to construct the smooth manifolds by resolving the orbifold singularity using toric geometry, and how to consistently embed U(1) gauge fluxes on them. Finally we match the obtained models with the standard heterotic orbifold models.

Primary author: TRAPLETTI, Michele (Ecole Polytechnique)

Track Classification: W3

Contribution ID: 64

Type: **not specified**

K. Dienes: "A New Approach to Flavor?"

Friday, 1 August 2008 10:30 (30 minutes)

The origin of flavor is one of the biggest mysteries of the Standard Model. Despite more than a half-century of data, we still have almost no explanation for family replication in the Standard Model. Many theoretical models can incorporate or accommodate this replication, but very few actually explain/predict/require it.

In this talk, I will describe some recent work on a possible new approach towards explaining the origin of family replication in the Standard Model.

Primary author: DIENES, Keith (U. Arizona)

Track Classification: W2

Contribution ID: 65

Type: **not specified**

F. Marchesano: "Generalized non-supersymmetric flux vacua"

Thursday, 14 August 2008 10:30 (30 minutes)

I will discuss an strategy to construct 4D $N=0$ stable flux vacua of type II string theory, based on the existence of BPS bounds for probe D-branes in some of these backgrounds. In particular, I will consider compactifications where D-branes filling the 4D space-time obey the same BPS bound as they would

in an $N=1$ compactification, while other D-branes, like those appearing as domain walls from the 4D perspective, can no longer be BPS. I will discuss a subfamily of such backgrounds giving rise to 4D $N=0$ Minkowski no-scale vacua, generalizing the well-known case of type IIB on a warped Calabi-Yau.

Primary author: MARCHESANO BUZNEGO, Fernando (Unknown)

Track Classification: W4

Contribution ID: 66

Type: **not specified**

M. Bianchi: "D-branes on T-folds with few T's"

Friday, 8 August 2008 10:00 (30 minutes)

Most of the mechanisms for moduli stabilization in String Theory involve R-R fluxes that can only be treated in the supergravity approximation. Non-geometric vacuum configurations with L-R asymmetric 'T-duality' twists and shifts allow to stabilize closed string moduli in a controllable way. Peculiarities of bound-states of D-branes in these backgrounds will be discussed in view of phenomenological applications to models with open and unoriented strings.

Primary author: BIANCHI, Massimo (U. Rome 2)

Track Classification: W3

Contribution ID: 67

Type: **not specified**

P. Anastasopoulos: "Anomalous U(1)'s at LHC"

Friday, 8 August 2008 10:30 (30 minutes)

I will study an extension of the MSSM by an anomalous abelian vector multiplet and a Stueckelberg multiplet. The anomalies are cancelled by the Green-Schwarz mechanism and the introduction of three-gauge-boson couplings that provide a massive boson like Z' with additional new couplings that have not been considered in the past. I will study the effects of these anomaly related terms and we show that they provide new effects in decays like $Z' \rightarrow Z$ photon and $Z' \rightarrow Z Z$ showing that in many cases the effects might be visible at LHC.

Primary author: ANASTASOPOPULOS, Pascal (U. Rome 2)

Track Classification: W3

Contribution ID: **68**

Type: **not specified**

J.F. Morales: "Non-perturbative interactions from fluxes"

Thursday, 14 August 2008 10:00 (30 minutes)

TBA

Primary author: MORALES, Jose Francisco (U. Rome 2)

Track Classification: W4

Contribution ID: 69

Type: **not specified**

C. Burgess: "Fibre Inflation and Tensor Perturbations in Type IIB Vacua"

Friday, 15 August 2008 10:00 (30 minutes)

The talk presents an inflationary model of inflation in Type IIB string vacua, wherein the inflaton is a Kahler modulus of a K3 fibration Calabi Yau. It arises within the large-volume framework and so is closely related to Kahler modulus inflation models, and shares with these the property that the slow roll is not achieved by tuning parameters in the potential. But unlike the Kahler modulus models it appears to allow the possibility of obtaining observably large primordial tensor fluctuations.

Primary author: BURGESS, Clifford (High Energy Physics Group - McGill University)

Track Classification: W4

Contribution ID: 71

Type: **not specified**

Discussion Session: "The String Landscape"

Wednesday, 13 August 2008 10:00 (1 hour)

Discussion led by M. Douglas, B. Schellekens and H. Verlinde on the string theory landscape and its impact on particle physics and cosmology

Primary authors: SCHELLEKENS, Bert (NIKHEF); VERLINDE, Herman (Princeton University); DOUGLAS, Michael (Simons Center / Rutgers/ IHES)

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Type: **not specified**

Discussion Session: Strings vs. LHC

Friday, 15 August 2008 10:30 (1 hour)

This will be an informal discussion on the status of string theory at the dawn of the LHC, and about the possible impact of coming experimental data.

Primary authors: ...; QUEVEDO, Fernando (Cambridge U.); KANE, Gordy (U. Michigan); IBANEZ, Luis (U. Autonoma Madrid)