

String-Math 2016, Collège de France, Paris

Monday, 27 June 2016 - Saturday, 2 July 2016

Collège de France
Programme

Table of contents

Monday 27 June 2016	1
Registration	1
Welcome address	1
Plenary session	1
Coffee break	1
Plenary session	1
Plenary session	1
Coffee break	2
Plenary session	2
Welcome cocktail	2
Tuesday 28 June 2016	3
Plenary session	3
Coffee break	3
Plenary session	3
Plenary session	3
Coffee break	4
Plenary session	4
Wednesday 29 June 2016	5
Plenary session	5
Coffee break	5
Plenary session	5
Thursday 30 June 2016	6
Plenary session	6
Coffee break	6
Plenary session	6
Plenary session	6
Coffee break	7
Plenary session	7
Conference dinner	7
Friday 01 July 2016	8
Plenary session	8
Coffee break	8

Plenary session	8
Plenary session	8
Coffee break	9
Plenary session	9
Saturday 02 July 2016	10
General public session	10
General public session	10
Coffee break	10
General public session	10

Monday 27 June 2016

Registration - Amphithéâtre Marguerite de Navarre (08:30-09:15)

Welcome address - Amphithéâtre Marguerite de Navarre (09:20-09:25)

Plenary session: Session 1A (Chair: Ron Donagi) - Amphithéâtre Marguerite de Navarre (27 Jun 2016, 09:30-10:55)

time [id] title

09:30	<p>[1] Framed BPS States In Two And Four Dimensions <i>Presenter: MOORE, Gregory (Rutgers University)</i> This talk has four parts. Part one reviews the derivation of the Kontsevich-Soibelman wall-crossing formula for BPS degeneracies in four-dimensional theories with $N=2$ supersymmetry using framed BPS states. This follows the papers [ArXiv:1006.0146,1008.0030]. I might also mention briefly a possible generalization under discussion with T. Dimofte and D. Gaiotto. Motivated by this possible generalization the next part turns to two-dimensional theories. Part two reviews the theory of interfaces defined by families of superpotentials in two-dimensional Landau-Ginzburg models with $(2,2)$ supersymmetry, and how this leads to a categorification of both S-wall-crossing (of spectral network theory) and of the Cecotti-Vafa wall-crossing formula. This part reviews some material from [ArXiv:1506.04087] (see [ArXiv: 1506.04086] for a "brief" introduction.) Part three applies the material of part two to the formulation of knot homology proposed by Witten in [ArXiv:1101.3216] and developed by Gaiotto and Witten in [ArXiv:1106.4789]. Part three is based on the recent PhD thesis of Dmitriy Galakhov. If time permits, part four reviews a mathematically completely well-defined formulation of vector spaces of framed BPS states for arbitrary 't Hooft-Wilson line defects, valid in the semiclassical regime of arbitrary $d=4$ $N=2$ theories with a Lagrangian formulation. Part four is based on [ArXiv:1512.08923] and ongoing work with Daniel Brennan.</p>
10:30	<p>[6] Exact WKB analysis, cluster algebras and Painlevé equations <i>Presenter: IWAKI, Kohei (University of Nagoya)</i> In the first part of the talk I'll describe a joint work with Tomoki Nakanishi and explain how the Voros symbols in exact WKB analysis realize (generalized) cluster variables. In the second part I'll generalize the notion of the Voros symbols to the Painlevé equations, and discuss their applications.</p>

Coffee break - Amphithéâtre Marguerite de Navarre (11:00-11:25)

Plenary session: Session 1B (Chair: Alessandro Chiodo) - Amphithéâtre Marguerite de Navarre (27 Jun 2016, 11:30-13:30)

time [id] title

11:30	<p>[5] Reduction for $SL(3)$ pre-buildings <i>Presenter: SIMPSON, Carlos (Université de Nice - Sophia Antipolis)</i> We discuss some aspects of the reduction process leading to a pre-building associated to an $SL(3)$ spectral curve. This construction is related to harmonic maps and the WKB problem, and has potential applications to the construction of stability conditions. This is joint work with Katzarkov, Noll and Pandit [arXiv:1503.00989], see also [arXiv:1311.7101]</p>
12:30	<p>[2] Meromorphic connections and quivers <i>Presenter: YAMAKAWA, Daisuke (Tokyo Institute of Technology)</i> In this talk I will review recent developments on the relationship between meromorphic connections on the Riemann sphere and quivers. Such relationship was first found by Crawley-Boevey in the case of logarithmic connections. He used it to solve the additive Deligne-Simpson problem, a sort of existence problem on logarithmic connections. I will explain the generalization of Crawley-Boevey's result conjectured by Boalch and solved affirmatively by Hiroe and myself, and touch on related topics.</p>

Plenary session: Session 2A (Chair: Bernard Julia) - Amphithéâtre Marguerite de Navarre (27 Jun 2016, 14:30-15:55)

time [id] title

14:30	<p>[7] SUSY field theories and geometric Langlands: The other side of the coin <i>Presenter: TESCHNER, Joerg (DESY, Hamburg)</i></p> <p>Inclusion of surface operators leads to interesting generalisations of the correspondence discovered by Alday, Gaiotto and Tachikawa between four-dimensional $N=2$ SUSY field theories and conformal field theory. My goal will be to outline how this generalisation is related to the geometric Langlands correspondence and to a certain quantum generalisation of this correspondence. The resulting picture has interesting relations both to the CFT-based approach to the geometric Langlands correspondence developed by Beilinson and Drinfeld, and to the gauge-theoretic approach of Kapustin and Witten, offering the perspective to integrate all these approaches into a unified picture.</p>
15:30	<p>[8] Fredholm determinant and Nekrasov type representations for isomonodromic tau functions <i>Presenter: LISOVYY, Oleg (LMPT, Tours)</i></p> <p>We will derive Fredholm determinant representation for isomonodromic tau functions of Fuchsian systems with n regular singular points on the Riemann sphere and generic monodromy in $\mathrm{GL}(n, \mathbb{C})$. The corresponding operator acts in the direct sum of $n-3$ copies of $L^2(S^1)$. Its kernel is expressed in terms of fundamental solutions of $n-2$ elementary 3-point Fuchsian systems whose monodromy is determined by monodromy of the relevant n-point system via a decomposition of the punctured sphere into pairs of pants. For $N=2$ these building blocks have hypergeometric representations, the kernel becomes completely explicit and has Cauchy type. In this case Fredholm determinant expansion yields multivariate series representation for the tau function of the Garnier system obtained earlier via its identification with Fourier transform of Liouville conformal block (or a dual Nekrasov-Okounkov partition function). Further specialization to $n=4$ gives a series representation of the general solution to Painlevé VI equation.</p>

Coffee break - Amphithéâtre Marguerite de Navarre (16:00-16:25)

Plenary session: Session 2B (Chair: David Morrison) - Amphithéâtre Marguerite de Navarre (27 Jun 2016, 16:30-18:00)

time [id] title

16:30	<p>[9] Elliptically fibered Calabi-Yau threefolds: mirror symmetry and Jacobi forms <i>Presenter: KATZ, Sheldon (University of Illinois at Urbana-Champaign)</i></p> <p>I explain an ansatz for the partition function of elliptically fibered Calabi-Yau threefolds in terms of Jacobi forms using a combination of B-model, homological mirror symmetry, and geometric techniques. This talk is based on joint work with Minxin Huang and Albrecht Klemm appearing in [arXiv:1501.04891] as well as work in progress.</p>
17:30	<p>[10] Derivation of modular anomaly equation in compact elliptic Calabi-Yau spaces <i>Presenter: HUANG, Minxin (University of Science and Technology of China)</i></p> <p>Modular anomaly have been discovered in topological string theory on elliptic Calabi-Yau spaces. We extend the derivation of genus zero anomaly equation for non-compact cases in the literature to compact cases. For higher genus, we derive the modular anomaly equation from BCOV holomorphic anomaly equation. Based on [arXiv:1501.04891].</p>

Welcome cocktail - Lobby (18:30-20:00)

Tuesday 28 June 2016

Plenary session: Session 3A (Chair: Sergei Gukov) - Amphithéâtre Marguerite de Navarre (28 Jun 2016, 09:30-10:55)

time [id] title

09:30	<p>[11] Quantized Coulomb branches of 3d N=4 gauge theories and difference operators <i>Presenter: NAKAJIMA, Hiraku (RIMS, Kyoto)</i> In [arXiv:1503.03676,1601.03586] (with Braverman and Finkelberg), I have proposed a mathematical approach to define Coulomb branches of 3d N=4 SUSY gauge theories. It is based on the homology group of a certain moduli space, and has a natural quantization by the equivariant homology group. For a quiver gauge theory, the quantized Coulomb branch has an embedding into the ring of difference operators on the Lie algebra of the maximal torus of the gauge group [arXiv:1604.03586]. We then discuss examples, e.g., relation to Macdonald operators and cyclotomic rational Cherednik algebras, which is a joint work with Kodera (to appear).</p>
10:30	<p>[12] 3D supersymmetric gauge theories and Hilbert series <i>Presenter: CREMONESI, Stefano (King's college, London)</i> The Hilbert series is a generating function that enumerates gauge invariant chiral operators of a supersymmetric field theory with four supercharges and an R-symmetry. In this talk I will explain how the counting of dressed 't Hooft monopole operators leads to a formula for the Hilbert series of a 3d N=2 gauge theory, which captures precious information about the chiral ring and the geometry of the moduli space of supersymmetric vacua of the theory.</p>

Coffee break - Amphithéâtre Marguerite de Navarre (11:00-11:25)

Plenary session: Session 3B (Chair: Nikita Nekrasov) - Amphithéâtre Marguerite de Navarre (28 Jun 2016, 11:30-12:55)

time [id] title

11:30	<p>[13] Cohomological Hall algebra actions and Kac polynomials <i>Presenter: SCHIFFMANN, Olivier (Université de Paris-Sud, Orsay)</i> We consider cohomological Hall algebras associated to quivers and their actions on the cohomology of Nakajima varieties; we relate these algebras with the Yangians constructed by Maulik and Okounov, and show that their Hilbert series are encoded by the Kac polynomials of the underlying quiver. For instance, for the 1-loop quiver, one obtains the Yangian of $\widehat{\mathfrak{gl}(1)}$ used relevant in the study of the AGT conjecture on \mathbb{P}^2. We also speculate on what the analog of all this when the quiver gets replaced by a curve.</p>
12:20	<p>[14] Plane partitions and W algebras <i>Presenter: BERSHTEIN, Mikhail (Landau Institute, Moscow)</i></p>

Plenary session: Session 4A (Chair: Motohico Mulase) - Amphithéâtre Marguerite de Navarre (28 Jun 2016, 14:30-15:55)

time [id] title

14:30	<p>[35] Spectral theory and topological strings <i>Presenter: MARINO, Marcos (University of Geneva)</i> I present a conjectural correspondence between topological string theory on toric Calabi-Yau manifolds, and the spectral theory of certain trace class operators on the real line, in the spirit of large N dualities. The operators are obtained by quantization of the algebraic curves which define the mirror manifolds to the Calabi-Yau's. This conjecture can be regarded as a non-perturbative definition of topological string theory on these backgrounds. It gives precise and explicit predictions for the Fredholm determinants of the corresponding operators, providing in this way a new class of exactly solvable problems in spectral theory. In addition, it leads to exact quantization conditions for cluster integrable systems. For a review see [ArXiv:1506.07757]</p>
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15:30	<p>[16] Monopoles, Vortices, and Vermas <i>Presenter: BULLIMORE, Mathew (Oxford)</i></p> <p>In three-dimensional gauge theories, monopole operators create and destroy vortices. I will explore this idea in the context of three-dimensional gauge theories with N=4 supersymmetry in the presence of an omega background. This leads to a finite version of the AGT correspondence, involving an action of the quantized Coulomb branch on the equivariant cohomology of vortex moduli spaces. (Work with T.Dimofte, D.Gaiotto, J.Hilburn, & H-C.Kim)</p>
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Coffee break - Amphithéâtre Marguerite de Navarre (16:00-16:25)

Plenary session: Session 4B (Chair: Constantin Bachas) - Amphithéâtre Marguerite de Navarre (28 Jun 2016, 16:30-17:55)

time [id] title

16:30	<p>[17] Higgs branches, vertex operator algebras and modular differential equations <i>Presenter: RASTELLI, Leonardo (Stony Brook University)</i></p>
17:30	<p>[18] What Chern-Simons theory assigns to a point ? <i>Presenter: HENRIQUES, André (Oxford and Utrecht University)</i></p> <p>According the cobordism hypothesis (proposed by Baez-Dolan, and proved by Lurie), an extended topological quantum field theory is fully determined by its value on the point. A natural question is then: does this classification theorem apply to the topological quantum field theories of physical interest? And if yes, what is then the value of those theories on a point (the latter will then determine the whole theory, by the cobordism hypothesis). In this talk, we will propose answers to the questions "What does Chern-Simons theory assign to a point?" and "What kind of mathematical object does Chern-Simons theory assign to a point?" The answer to the first question is "representations of the based loop group"; the answer to the second question is "categorified von Neumann algebras".</p>

Wednesday 29 June 2016

Plenary session: Session 5A (Chair: Mariana Grana) - Amphithéâtre Marguerite de Navarre (29 Jun 2016, 09:30-10:55)

time [id] title

09:30	<p>[19] Period integrals of algebraic manifolds and their differential equations <i>Presenter: YAU, Shing-Tung (Harvard)</i> Period integrals are transcendental objects that play a central role in the study of algebraic manifolds. They describe deformations of the manifold, among other things, and were originally studied by Euler, Gauss, and Riemann. In recent time, they also turn out to be very important in topological field theories, and in particular mirror symmetry. In this talk, we explain a recent method to study period integrals through differential equations, and describe a few applications including the resolution of some open issues.</p>
10:30	<p>[20] Hexagons and 3-point functions <i>Presenter: BASSO, Benjamin (ENS Paris)</i> I will present a framework for computing correlators of three single trace operators in planar N=4 SYM theory that uses hexagonal patches as building blocks. This approach allows one to exploit the integrability of the theory and derive all loop predictions for its structure constants. After presenting the main ideas and results, I will discuss recent perturbative tests and open problems. Based on [arXiv 1505.06745]</p>

Coffee break - Amphithéâtre Marguerite de Navarre (11:00-11:25)

Plenary session: Session 5B (Chair: Michela Petrini) - Amphithéâtre Marguerite de Navarre (29 Jun 2016, 11:30-13:00)

time [id] title

11:30	<p>[21] A Vafa-Witten invariant for projective surfaces <i>Presenter: THOMAS, Richard (Imperial College, London)</i> I will describe joint work with Yuuji Tanaka. We define a Vafa-Witten invariant for algebraic surfaces. For Fano and K3 surfaces, a standard vanishing theorem means it reduces to (roughly speaking) the Euler characteristic of the moduli space of sheaves on the surface. For general type surfaces there are other contributions, which we calculate.</p>
12:30	<p>[22] Quantum Spectral Curve for AdS/CFT and its applications <i>Presenter: GROMOV, Nikolai (King's College, London)</i></p>

Thursday 30 June 2016

Plenary session: Session 6A (Chair: Miranda Cheng) - Amphithéâtre Marguerite de Navarre (30 Jun 2016, 09:30-10:55)

time [id] title

09:30	[23] Moduli spaces of holomorphic and meromorphic differentials <i>Presenter: PANDHARIPANDE, Rahul (ETH Zurich)</i>
10:30	[24] The Chern character of the Verlinde bundle <i>Presenter: ZVONKINE, Dimitri (Université Pierre et Marie Curie, Paris)</i> The Verlinde bundle, or the bundle of conformal blocks, is a vector bundle whose rank is given by the well-known Verlinde formula. We will explain how Teleman's classification of semi-simple cohomological field theories allow one to find the Chern character of this vector bundle.

Coffee break - Amphithéâtre Marguerite de Navarre (11:00-11:25)

Plenary session: Session 6B (Chair: Stefan Theisen) - Amphithéâtre Marguerite de Navarre (30 Jun 2016, 11:30-13:00)

time [id] title

11:30	[25] Correlation Functions in Superconformal Field Theories <i>Presenter: GOMIS, Jaume (Perimeter Institute, Waterloo)</i> We discuss the exact computation of correlation functions of local operators in the Coulomb branch in four-dimensional $N=2$ superconformal field theories.
12:30	[26] Conformal constraints on defects <i>Presenter: GADDE, Abhijit (IAS, Princeton)</i> I will explore the constraints imposed by conformal invariance on defects in a conformal field theory. Correlation function of a conformal defect with a bulk local operator is fixed by conformal invariance up to an overall constant. This gives rise to the notion of defect expansion, where the defect itself is expanded in terms of local operators. A correlator of two defect operators admits a number of conformal cross-ratios depending on their dimensionality. I will find the differential equation obeyed by the conformal block and solve them in certain special cases. [arXiv:1602.06354]

Plenary session: Session 7A (Chair: Philip Boalch) - Amphithéâtre Marguerite de Navarre (30 Jun 2016, 14:30-15:55)

time [id] title

14:30	[27] Moduli spaces of curves with non-special divisors <i>Presenter: POLISCHCHUK, Alexander (University of Oregon)</i> In this talk I will discuss the moduli spaces of pointed curves with possibly non-nodal singularities such that the marked points form a nonspecial ample divisor. I will show that such curves have natural projective embeddings, with a canonical choice of homogenous coordinates up to rescaling. Using Groebner bases technique this leads to the identification of the moduli with the quotient of an affine scheme by the torus action. These moduli spaces also have a natural interpretation in terms of the Krichever map. In the genus 1 case I will describe explicitly the corresponding GIT stability conditions. If time allows, I will explain how the same moduli spaces appear when studying A-infinity algebras associated with curves.
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15:30	<p>[30] Higgs bundles, branes and applications <i>Presenter: SCHAPOSNIK, Laura (University of Illinois at Chicago)</i></p> <p>We shall begin the talk by first introducing Higgs bundles for complex Lie groups and the associated Hitchin fibration, and recalling how to realize Langlands duality through spectral data. We will then look at a natural construction of families of subspaces which give different types of branes, and explain how the topology of some of these branes can be described by considering the spectral data. Finally, we shall give some applications of the above approaches in relation to Langlands duality, and representations of 3-manifolds. Some of the work presented during the talk is in collaboration with David Baraglia (Adelaide) and Steve Bradlow (UIUC) and Nigel Hitchin (Oxford).</p>
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Coffee break - Amphithéâtre Marguerite de Navarre (16:00-16:25)

Plenary session: Session 7B (Chair: Ronen Plesser) - Amphithéâtre Marguerite de Navarre (30 Jun 2016, 16:30-18:30)

time [id] title

16:30	<p>[29] From the Hitchin component to opers <i>Presenter: DUMITRESCU, Olivia (MPIM, Bonn)</i></p> <p>Gaiotto's conjecture (2014) is a particular construction of opers from Higgs bundles in one Hitchin component. The conjecture has been recently solved by a joint paper of Dumitrescu, Fredrickson, Kydonakis, Mazzeo, Mulase, and Neitzke (2016). In this talk, I will present a holomorphic description of the limiting oper, and its geometry. The importance of this correspondence, in particular the relation with the "quantum curve" of Dumitrescu - Mulase (2013) will be discussed.</p>
17:00	<p>[28] Chern–Simons theory on S^3/G and topological strings <i>Presenter: BOROT, Gaétan (MPIM, Bonn)</i></p> <p>We study the matrix models representing (a piece of) $SU(N)$ Chern-Simons partition function on quotients of S^3 by a finite group of isometries (these are the spherical Seifert manifolds). We show 1) that these partition functions have $1/N$ asymptotic (by opposition to formal) expansion, which is computed by the topological recursion of Eynard and Orantin for a suitable spectral curve and 2) that the spectral curve is algebraic and can be constructed in relation with ADE root systems (E8 being realized by the Poincare sphere). We also show by explicit (and complete for all cases except E8) checks that this spectral curve is a specialization of the spectral curve of a relativistic ADE Toda chain considered by Marshakov et al. and Williams. Relying on large N transitions, geometric engineering and correspondences between gauge theories and integrable systems, this fits into a generalization of the Gopakumar-Vafa conjecture to S^3/G. E.g., a correspondence between its CS invariants and the Gromov-Witten invariants of a Calabi-Yau 3 fold $X_{\{G\}}$, with the interesting feature that $X_{\{G\}}$ is non-toric when G is not abelian.</p>

Conference dinner (19:15-22:15)

Friday 01 July 2016

Plenary session: Session 8A (Chair: Eric Sharpe) - Amphithéâtre Marguerite de Navarre (1 Jul 2016, 09:30-10:55)

time [id] title

09:30	[31] Resurgence and exact quantization via holomorphic Floer cohomology <i>Presenter: KONTSEVICH, Maxim (IHES)</i> I will present a new perspective on Riemann-Hilbert correspondence and wall-crossing based on the considerations of Fukaya categories associated with a holomorphic symplectic manifold and a possibly singular analytic Lagrangian subvariety. This framework includes holonomic D-modules (for the case of cotangent bundles) on the same footing as q-difference equations.
10:30	[32] Derived equivalences from a duality of non-abelian GLSM's <i>Presenter: RENNEMO, Jørgen (Oxford)</i> Joint work with Ed Segal. Producing examples of non-isomorphic varieties X and Y with equivalent derived categories is in general hard. A technique involving LG models and variation of GIT stability has recently proved to be a powerful way of obtaining such examples. Kentaro Hori has proposed an duality between different non-abelian gauged linear sigma models. One consequence of this duality is the equivalence of the category of B-branes associated with the dual GLSM's. We prove this predicted categorical equivalence. Combining this with the LG/VGIT techniques we can then find new examples of varieties X, Y, (geometrically described as linear sections of Pfaffian varieties) which have equivalent (or closely related) derived categories. Joint work with Ed Segal. For background, see e.g. Addington, Donovan, Segal [arXiv:1401.3661] and Hori [arXiv:1104.2853]

Coffee break - Amphithéâtre Marguerite de Navarre (11:00-11:25)

Plenary session: Session 8B (Chair: Washington Taylor) - Amphithéâtre Marguerite de Navarre (1 Jul 2016,

11:30-13:00)

time [id] title

11:30	[33] Analytical Approaches to Coalescing Binary Black Holes <i>Presenter: DAMOUR, Thibault (IHES, Bures sur Yvette)</i> The rationale for interpreting the recently announced events of the Laser Interferometer Gravitational-Wave Observatory (LIGO) as gravitational wave (GW) signals emitted during the coalescence of two black holes is the excellent match between these events and the corresponding theoretical predictions within General Relativity. We shall review the mix of analytical and numerical methods that led to predict in advance the precise shape of the waveform emitted by coalescing binary black holes. In particular, we shall present the basis of the Effective One-Body method which has been crucial in allowing one to compute the bank of 250 000 GW templates that has been used to search coalescence signals, and to measure the masses and spins of the coalescing black holes.
12:30	[36] Poisson-Lie T-duality <i>Presenter: SEVERA, Pavol (University of Geneva)</i> I will give a review of Poisson-Lie T-duality, which is a non-Abelian generalization of T-duality, and explain it in terms of Chern-Simons theory and its generalizations (AKSZ models) with appropriate boundary conditions. Based on [arXiv:1602.05126]

Plenary session: Session 9A (Chair: Mathias Gaberdiel) - Amphithéâtre Marguerite de Navarre (1 Jul 2016,

14:30-15:55)

time [id] title

14:30	<p>[15] Two mathematical applications of little string theory <i>Presenter: AGANAGIC, Mina (UC Berkeley)</i></p> <p>I will describe two mathematical applications of little string theory. The first leads a variant of AGT correspondence that relates q-deformed W algebra conformal blocks to K-theoretic instanton counting. This correspondence can be proven for any simply laced Lie algebra. The second leads to a variant of quantum Langlands correspondence which relates q-deformed conformal blocks of an affine Lie algebra and a W algebra, associated to a Langlands dual pair of Lie algebras. The proof to the correspondence for simply laced Lie algebras involves, in a crucial way, the recently discovered elliptic stable envelopes.</p>
15:30	<p>[34] Umbral symmetry groups and K3 CFTs <i>Presenter: HARRISON, Sarah (Harvard)</i></p> <p>Umbral moonshine is a connection between mock modular forms and discrete symmetry groups which arise as automorphisms of the Niemeier lattices, the 24-dimensional unimodular lattices labeled by their ADE root systems. The first example of Umbral moonshine was original discovered by Eguchi, Ooguri, Tachikawa when expanding the elliptic genus of a K3 surface into $N=4$ characters and seeing coefficients which are sums of irreducible representations of the sporadic group M_{24}. In recent work with Miranda Cheng, we have suggested that all umbral symmetry groups may have some relation to K3 CFTs. On the other hand, a theorem of Gaberdiel, Hohenegger, and Volpato has shown that symmetries of K3 CFTs can naturally be classified by elements of the group $Conway_0$, the automorphism group of the Leech lattice, which preserve a four-plane. In this talk we briefly review the aforementioned results, and discuss the extension of this theorem a) to singular CFTs, in which case the role of $Conway_0$ is naturally replaced by certain umbral groups, and b) when one takes worldsheet parity into account. Based on [ArXiv:1406.0619, 1512.04942], and work to appear with Miranda Cheng and Roberto Volpato</p>

Coffee break - Amphithéâtre Marguerite de Navarre (16:00-16:25)

Plenary session: Session 9B - Amphithéâtre Marguerite de Navarre (1 Jul 2016, 16:30-17:30)

time [id] title

16:30	<p>[42] Geometric Langlands applications of boundary conditions for maximally supersymmetric Yang Mills theory <i>Presenter: GAIOTTO, Davide (Perimeter Institute, Waterloo)</i></p> <p>I will discuss the properties of boundary conditions of maximally supersymmetric Yang Mills theory compactified on a Riemann surface. Depending on the details of the compactification, this produces BAA branes (i.e. complex Lagrangian submanifolds) or BBB branes (i.e. hyper-holomorphic sheaves) for the two-dimensional sigma model in the Hitchin moduli space. I will discuss the map from four-dimensional boundary conditions to two-dimensional boundary conditions and the action of S-duality on the system. Mathematically, this construction provides collections of Geometric Langland dual pairs of objects.</p>
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Saturday 02 July 2016

General public session: morning session (Chair: Boris Pioline) - Amphithéâtre Marguerite de Navarre (2 Jul 2016, 09:30-12:00)

time [id] title

09:30	[37] What is gravity ? <i>Presenter: Prof. OOGURI, Hiroshi (Caltech)</i>
10:30	Coffee break
11:00	[38] Catching monodromy <i>Presenter: Prof. OKOUNKOV, Andrei (Columbia University)</i> I will talk about monodromy of special functions, why is it important, and about some new ways in which mathematical physicists are learning to think about the monodromy of special functions of interest.

General public session: Afternoon session A (Chair: Ruben Minasian) - Amphithéâtre Marguerite de Navarre (2 Jul 2016, 14:00-16:15)

time [id] title

14:00	[39] Quantum Geometry <i>Presenter: Prof. DIJKGRAAF, Robbert (IAS, Princeton)</i>
15:15	[40] Geometry and Physics: Past and Future <i>Presenter: Prof. HITCHIN, Nigel (Oxford)</i>

Coffee break - Amphithéâtre Marguerite de Navarre (16:15-16:45)

General public session: Afternoon session B (Chair: Amir-Kian Kashani-Poor) - Amphithéâtre Marguerite de Navarre (2 Jul 2016, 16:45-17:45)

time [id] title

16:45	[41] Physics and Mathematics for the End of Spacetime <i>Presenter: Prof. ARKANI-HAMED, Nima (IAS, Princeton)</i>
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