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| Dmitrii | Adler | Weak Jacobi forms for root lattice of type D_8 | For every quadratic lattice one can define the notion of weak Jacobi forms associated with this lattice. In 1992 K. Withmüller proved that the spaces of weak Jacobi forms associated with root lattices (except E_8) have the structure of a free algebra over the ring of modular forms. However, his proof is very complicated and probably contains some gaps. In my talk I plan to introduce some constructions that help to solve this problem in case D_8 and obtain generators of the corresponding algebra in an explicit way. The talk will be based on joint results with Valery Gritsenko (publication in preparation). |
| Samuele | Anni | Computing L-invariants via the Greenberg-Stevens formula | In this talk, I will describe how to compute slopes of p-adic L-invariants of arbitrary weight and level by means of the Greenberg-Stevens formula. The method is based on work of Lauder and Vonk on computing the reverse characteristic series of the Up-operator on overconvergent modular forms. Using higher derivatives of this characteristic series, it is possible to construct a polynomial whose zeros are precisely the L-invariants appearing in the corresponding space of modular forms with fixed sign of the Atkin-Lehner involution at p. This is joint work with Gebhard Böckle, Peter Mathias Gräf and Alvaro Troya. |
| Edgar | Assing | The sup-norm problem for automorphic forms over number fields in the level aspect | We will present recent results concerning the sup-norm of GL_2 automorphic forms over number fields. In particular, we will focus on situations that appear for forms which are highly ramified at finite places. This will leads naturally to interesting questions related to the representation theory of GL_2 over local fields. |
| Olga | Balkanova | Prime geodesic theorem for the Picard manifold | Let $\Gamma = PSL(2, \mathbb{Z}[i])$ be the Picard group and \mathbb{H}^3 be the three-dimensional hyperbolic space. We study the Prime Geodesic Theorem for the quotient $\Gamma \backslash \mathbb{H}^3$, called the Picard manifold, obtaining an error term of size $O(X^{3/2+\theta/2+\epsilon})$, where θ denotes a subconvexity exponent for quadratic Dirichlet L-functions defined over Gaussian integers. This is joint work with Dmitry Frolenkov. |
| Boualem | Benseba | A note in Diophantine Equation | In this talk, we investigate the Diophantine equation $x^2 - kxy + ky^2 + ly = 0$ for integers k and l with k even and we characterized all solution in the case where $l^2 < k$. Similarly, we give a characterization of the positive solutions of the equation $x^2 - kxy + ky^2 + 2^r 3^s y = 0$ where $k \equiv 2 \pmod{3}$ if $r=0$, If not, n, s and t are non-negative integers when $k=2k'+1$ with $k' \equiv 2 \pmod{3}$. |

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| Andras | Biro | Local average of the hyperbolic circle problem for Fuchsian groups | <p>Let $\Gamma \subseteq \mathrm{PSL}(2, \mathbb{R})$ be a finite volume Fuchsian group. The hyperbolic circle problem is the estimation of the number of elements of the Γ-orbit of z in a hyperbolic circle around w of radius R, where z and w are given points of the upper half plane \mathbb{H} and R is a large number. An estimate with error term $O(R^{2/3})$ is known, and this has not been improved for any group. Recently Risager and Petridis proved that in the special case $\Gamma = \mathrm{PSL}(2, \mathbb{Z})$ taking $z=w$ and averaging over z in a certain way the error term can be improved to $O(R^{7/12 + \epsilon})$. We proved such an improvement for a general Γ, our error term is $O(R^{5/8 + \epsilon})$ (which is better than $O(R^{2/3})$ but weaker than the estimate of Risager and Petridis in the case $\Gamma = \mathrm{PSL}(2, \mathbb{Z})$). Our main tool is our generalization of the Selberg trace formula proved earlier.</p> |
| Jim | Brown | Congruences for paramodular Saito-Kurokawa lifts and applications | <p>Let $\phi \in S_k(\Gamma_0(M))$ be a newform whose functional equation has sign -1. It is well known there is a lift of ϕ to a Siegel modular form $f_\phi \in S_k(\Gamma[M])$ where $\Gamma[M] \subseteq \mathrm{Sp}_4(\mathbb{Q})$ is the paramodular group. In this talk we give a congruence result for Hilbert Siegel modular forms that we then specialize to the paramodular setting. We show there is a congruence between f_ϕ and a cuspidal Siegel eigenform with irreducible Galois representation. This congruence provides evidence for the Bloch-Kato conjecture for ϕ not covered by previous work. This is joint work with Huixi Li.</p> |
| Kwangho | Choiy | On reducibility of parabolic induction for simply-connected p -adic groups | <p>The study on reducibility of parabolic induction plays a crucial role in constructing tempered L-packets of p-adic groups and establishing the endoscopic classification of automorphic representations. In this talk, we shall focus on simply-connected p-adic groups $\mathrm{SL}(n)$, $\mathrm{SU}(n)$, and $\mathrm{Spin}(n)$, and address a combinatorial approach to the study by means of R-groups. We relate their R-groups to those of $\mathrm{GL}(n)$, $\mathrm{U}(n)$, and $\mathrm{GSpin}(n)$, respectively, and discuss a conjectural generalization for an arbitrary simply-connected group. This is based on joint work with D. Goldberg and another with D. Ban and D. Goldberg.</p> |

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| Soumya | Das | Petersson norms of not necessarily cuspidal Jacobi modular forms and applications | We extend the usual notion of Petersson inner product on the space of cuspidal Jacobi forms to include non-cuspidal forms as well. This is done by examining carefully the relation between certain "growth-killing" invariant differential operators on the Siegel upper half space of degree 2 and those on $H \times C$. As applications, we can understand better the growth of Petersson norms of Fourier Jacobi coefficients of Klingen Eisenstein series, which in turn has applications to finer issues about representation numbers of quadratic forms; and as a by-product we also show that any Siegel modular form of degree 2 is determined by its 'fundamental' Fourier coefficients. |
| Chantal | David | Moments of cubic Dirichlet twists over function fields | We present in this talk some results about the first moment of cubic twists of Dirichlet L-functions over the function field $F_q(T)$, when $q \equiv 1 \pmod{3}$. In this case, the ground field contains all third roots of 1, and the cubic twists are given by Kummer theory. We first explain the history of the problem and the standard conjectures for moments of L-functions, and present the previous results, over number fields and function fields. The case of cubic twists over number fields was considered in previous work, but never for the full family over a field containing the third roots of unity. |
| Giuliana | Davidoff | A proposed addition to Bhargava's thesis | In his remarkable thesis, Manjul Bhargava reformulated Gauss' composition law for quadratic forms in a beautifully elegant, but elementary setting. He went on to generalize his setting to the cases of cubic, quartic, and quintic forms and, in the process, discovered a number of additional composition laws, describing a mathematical framework that explained them and gave him a way to address and resolve other outstanding problems in number theory. In the cubic case, his descriptions are complete, but many of the underlying details are omitted. It would be interesting to fill these in and provide a more complete dictionary in the Bhargava setting of the connection between composition of forms and the arithmetic of cubic fields. |

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| Stephan | Ehlen | New variants of the Doi and Doi-Naganuma lift and applications | Doi and Doi-Naganuma lifts, which lift elliptic modular forms of integral weight k to Hilbert modular forms of parallel weight k on the full Hilbert modular group over a real quadratic field of discriminant D . Namely, we extend the lift in two directions: 1) we extend it to harmonic Maass forms (following Borchers who previously extended it to weakly holomorphic forms) and 2) we allow forms of level d for any d dividing D . The functions we obtain are analogues of polar harmonic Maass forms on Hilbert modular surfaces. Moreover, as one of our applications, we find that the Eisenstein series appearing in Gross's and Zagier's paper on the factorization of singular moduli is a lift of an incoherent Eisenstein series of weight one attached to an imaginary quadratic field. This connects the proof by Gross and Zagier of the factorization formula with the one given by Schofer using regularized theta lifts. |
| Márton | Erdélyi | Kloosterman sums over GL_n | We define certain generalization of Kloosterman sums over $GL_n(F)$, where F is a finite field. The analogue of Weil's bound for classical Kloosterman sums holds in this setting and it can be proved by an elementary argument (and Weil's bound). Moreover in some cases the general sum can be expressed with classical sums over a finite extension of F . |
| Adriana | Espinosa | A discussion on increasing diversity in STEM | The purpose of this talk is to discuss key areas related to the recruitment and retention of a diverse population in STEM, with particular emphasis in mathematics. The speaker will also present results from psychological experiments highlighting environmental obstructions to individual performance in mathematics, and the diversification of STEM. |
| Johann | Franke | Ramanujan identities of higher degree | We use techniques regarding generalized Dirichlet series to obtain formulas for a wide class of L -functions at rational arguments. It is shown that these values are related to special functions on the upper half plane which possess similar properties as modular forms. Several formulas of Ramanujan involving values of L -functions at integer arguments turn out to be special cases of the main theorem. |

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| Dmitry | Frolenkov | Convolution formula for the sums of generalized Dirichlet L-series | We will discuss the Generalized Dirichlet series $L_n(s)$ that arise naturally in various contexts, from the theory of modular forms to the Prime Geodesic Theorem. On the one hand, the mean value of $L_n(1/2)$ determines the quality of the error term in asymptotic formulas for moments of symmetric square L-functions. On the other hand, investigation of the series $L_n(s)$ at the point 1 is ultimately related to the Prime Geodesic Theorem. Using the Kuznetsov trace formula, we prove a spectral decomposition for the sums of generalized Dirichlet L-series. Among applications are an explicit formula relating norms of prime geodesics to moments of symmetric square L-functions and an asymptotic expansion for the average of central values of generalized Dirichlet L-series. This is joint work with Olga Balkanova. |
| Richard | Gottesman | Vector Valued Modular Forms on $\Gamma_0(2)$ | Vector valued modular forms form a graded module over the ring of modular forms. I will explain how understanding the structure of the module of vector valued modular forms allows one to show that the component functions of vector valued modular forms are solutions to certain ordinary differential equations. In certain cases, one can use a Hauptmodul and hypergeometric series to solve these differential equations. One then obtains the q-series expansions of the vector valued modular forms. This perspective gives a viable approach towards proving certain cases of the unbounded denominator conjecture. |
| Michael | Griffin | Polya's Program for the Riemann Hypothesis and Related Problems | In 1927 Polya proved that the Riemann Hypothesis is equivalent to the hyperbolicity of Jensen polynomials for Riemann's ζ -function. This hyperbolicity has only been proved for degrees $d=1, 2, 3$. We prove the hyperbolicity of 100% of the Jensen polynomials of every degree. We obtain a general theorem which models such polynomials by Hermite polynomials. This theorem also allows us to prove a conjecture of Chen, Jia, and Wang on the partition function. This is joint work with Ken Ono, Larry Rolen, and Don Zagier. |
| Xavier | Guitart | Modular forms over cubic fields and algebraic points in elliptic curves | In this talk I will describe a conjectural construction of algebraic points on modular elliptic curves defined over cubic number fields of mixed signature. The points are defined as integrals of the corresponding modular form, in a way that resembles Darmon's ATR points for curves over real quadratic fields. I will also present some numerical evidence in support of the conjectured rationality. This is joint work with Marc Masdeu and Haluk Sengun. |

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| Marcela | Hanzer | Eisenstein series arising from Jordan algebras | We describe poles and the corresponding residual automorphic representations of Eisenstein series attached to maximal parabolic subgroups whose unipotent radicals admit Jordan algebra structure. (joint work with G. Savin) |
| Fernando | Herrera Contreras | On a Koecher-Maass series of several variables | <p>The Koecher-Maass series is a Dirichlet series built with the Fourier coefficients of an arbitrary Siegel cusp form. If we evaluate it at a particular complex number we obtain a linear functional of the vector space of cuspidal Siegel modular forms. Such a functional is associated to a particular integral kernel. Such kernel has been worked in several cases.</p> <p>In this talk we consider the Koecher-Maass series of Siegel cusp forms of degree three twisted by certain Eisenstein series of $GL_3(\mathbb{Z})$. This is a multiple variables Dirichlet series. We find the corresponding integral kernel and describe some of its analytic properties.</p> |
| Sebastián | Herrero | A Jensen-Rohrlich type formula for the hyperbolic 3-space | <p>The classical Jensen's formula is a well-known theorem of complex analysis which characterizes, for a meromorphic function f on the unit disc, the value of the integral of $\log f(z)$ on the unit circle in terms of the zeros and poles of f inside the unit disc. An important theorem of Rohrlich establishes a version of Jensen's formula for modular functions f with respect to the full modular group $PSL_2(\mathbb{Z})$ and expresses the integral of $\log f(z)$ over the corresponding modular curve in terms of special values of Dedekind's eta function.</p> <p>In this talk I will present a Jensen-Rohrlich type formula for certain family of functions defined in the hyperbolic 3-space which are automorphic for the group $PSL_2(\mathcal{O}_K)$ where \mathcal{O}_K denotes the ring of integers of an imaginary quadratic field. This is joint work with Ö. Imamoglu (ETH Zurich), A.-M. von Pippich (TU Darmstadt) and Á. Tóth (Eotvos Lorand Univ.).</p> |

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| Peter | Humphries | Quantum Unique Ergodicity in Almost Every Shrinking Ball | A well-known conjecture of Berry states that eigenfunctions f of the Laplacian on a finite volume negatively curved manifold M should behave like random waves as the Laplacian eigenvalue tends to infinity. One manifestation of this conjecture is quantum unique ergodicity on configuration space, which states that the probability measures $ f ^2 d\mu$ converge weakly to the uniform measure $d\mu$ on M . For $M = \Gamma \backslash H$, these eigenfunctions are Maass forms, and this conjecture is a celebrated theorem of Lindenstrauss and Soundararajan. It is natural to ask whether equidistribution of these measures still occurs in balls centred at fixed points in $\Gamma \backslash H$ whose radii shrink as the Laplacian eigenvalue tends to infinity. We show that if the radius shrinks faster than the Planck scale, equidistribution may fail, and we discuss how to prove (conditional or unconditional) results towards equidistribution for balls shrinking at any scale larger than the Planck scale that are centred at almost every point in $\Gamma \backslash H$. |
| Paul | Jenkins | Canonical bases for spaces of weakly holomorphic modular forms | Canonical bases for spaces of weakly holomorphic modular forms often have many nice properties. These include divisibility results and congruences for their Fourier coefficients, zeros along lines or arcs, and explicit formulas for their generating functions. We discuss recent results in this area, many of which are joint with graduate and undergraduate students. |
| Jonas | Kaszian | Higher depth quantum modular forms and multiple Eichler integrals | Jointly with Kathrin Bringmann and Antun Milas, we constructed examples of higher depth quantum modular forms coming from rank two false theta functions appearing in vertex algebra representation theory. The “companions” of the false theta functions in the lower half-plane can be realized both as double Eichler integrals and as non-holomorphic theta series having values of “double error” functions as coefficients. |
| Gene | Kopp | Generating weights of modules of vector-valued modular forms for the Weil representation | I will discuss joint work with Luca Candelori and Cameron Franc in which we develop geometric methods to study the weights of the generators of a graded module of vector-valued modular forms of half-integral weight, taking values in a complex representation of the metaplectic group. We use these methods to compute the “generating weights” for the Weil representation attached to cyclic quadratic module of order twice a prime power. The computation takes a detour through classical number theory to make use of some lesser-known facts about the distribution of quadratic residues. Finally, we show that the generating weights approach a simple limiting distribution. |

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| Min | Lee | A conjectural extension of Hecke's converse theorem | During the workshop focused on Sarnak's Rigidity Conjecture in January 2017, we have formulated a precise conjecture that, if true, extends the converse theorem of Hecke without requiring hypotheses on twists by Dirichlet character or an Euler product. The main idea is to linearize the Euler product, replacing it with twists by Ramanujan sums. In this talk, I provide our motivation and evidence for the conjecture, including results of some special cases and under various additional hypotheses. This is a joint work with S. Bettin, J. Bober, A. Booker, B. Conrey, G. Molteni, T. Oliver, D. Platt and R. Steiner. |
| Hunduma | Legesse Geleta | Error Bernoulli Polynomial | Abstract: In this article we introduce and investigate new families of polynomials $B_n(1/2, x)$ called error Bernoulli polynomials through generating functions, Appell sequences and umbral calculus. We also show that these polynomials are related to the Hermite polynomials. |
| Didier | Lesesvre | Arithmetical Statistics on Quaternion Algebras | We aim at studying automorphic forms of bounded analytic conductor, after precisely defining such a notion, in the division quaternion algebra setting. We prove the equidistribution of the universal family with respect to an explicit and geometrically meaningful measure. It leads to answering the Sato-Tate conjectures in this case, and contains the counting law of the universal family, with a power savings error term in the totally definite case. |
| Yingkun | Li | Divisibility of Fourier coefficients of meromorphic modular forms | It is well-known that Fourier coefficients of modular forms satisfy many congruence properties. In this talk, we will look at some weight 4 meromorphic modular forms, whose n -th Fourier coefficient is divisible by n . This is a joint work with Michalis Neuruer at TU Darmstadt. |
| Rob | Little | Kudla Millson Theta Series for $U(2,1)$ | In their celebrated series of papers around 30 years ago, Stephen Kudla and John Millson developed a theory of holomorphic modular forms, both homological and cohomological, for the Lie groups $O(p,q)$ and $U(p,q)$, related through Poincare duality. In this talk, I shall discuss the case of $U(2,1)$, and following from the work of Funke-Millson on $SO(2,2)$, use this (relatively) down-to-earth example to show how one can relate the behaviour of the cohomological theta series at the Borel-Serre boundary components to the behaviour of the homological special cycles. In particular, we may write the |
| Steffen | Löbrich | Traces of Singular Moduli and Regularized Inner Products | We study weight 2 modular forms associated to quadratic forms of negative discriminant and relate them to traces of singular moduli of Niebur-Poincaré series. This allows us to compute regularized inner products of these functions, which are given by traces of singular moduli of Green's functions. |

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| David | Lowry-Duda | Counting Lattice Points on Spheres and Hyperboloids | We discuss asymptotics for the number of lattice points in a ball of radius R around the origin, and lying on the one-sheeted hyperboloid $x_1^2 + \dots + x_k^2 = x_{d+1}^2 + h$. These should be thought of as analogies to the Gauss circle problem. We describe ideas and techniques from shifted convolution sums and modular forms and further ideas in progress. |
| Amita | Malik | Extremal primes for elliptic curves | For an elliptic curve E over \mathbb{Q} , the distribution of the number of points on $E \bmod p$ has been well-studied over the last few decades. A relatively recent study is that of extremal primes for a given elliptic curve E . These are the primes p of good reduction for which the number of points on $E \bmod p$ is either maximal or minimal. For the curve with CM, an asymptotic for the number of extremal primes was determined by James and Pollack. In this talk, I will discuss recent progress in the non-CM case. This is joint work with C. David, A. Gafni, N. Prabhu, and C. Turnage-Butterbaugh. |
| Toshiki | Matsusaka | Traces of CM values and cycle integrals of polyharmonic Maass forms | As a generalization of harmonic Maass forms, we consider polyharmonic Maass forms characterized by the repeating action of the ξ -operator. In this talk, we show that the traces of CM values and cycle integrals of polyharmonic Maass forms of weight 0 appear as the Fourier coefficients of polyharmonic Maass forms of weight $1/2$ and $3/2$. This is an extension of Zagier and Duke-Imamoglu-Toth's famous works. |
| Kathrin | Maurischat | Vector valued Γ -integrals | We determine Γ -integrals for irreducible rational GL_m -representations. For $m=2$ our result is exhaustive, and we cover some general families. As an application, we define Sturm's operator for vector valued symplectic modular forms. |
| Jaban | Meher | Certain identities among eigenforms | For $m=2$ our result is exhaustive, and we cover some general families. |
| Andreea | Mocanu | Eisenstein series for Jacobi forms of lattice index | As an application, we define Sturm's operator for vector valued symplectic modular forms. |
| Grant | Molnar | The Arithmetic of Modular Grids | We prove Zagier duality between canonical bases for pairs of spaces of weakly holomorphic modular forms, and examine the properties of bivariate generating functions for these bases. |
| Eric | Moss | Congruences for Fourier Coefficients of Modular Functions of Levels 2 and 4 | We give congruences modulo powers of 2 for the Fourier coefficients of certain level 2 modular functions with poles only at 0, answering a question posed by Andersen and Jenkins. The congruences involve a modulus that depends on the binary expansion of the modular form's order of vanishing at ∞ . We also demonstrate congruences for Fourier coefficients of some level 4 modular functions. |

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| Michael | Neururer | Fourier expansions at cusps | I will talk about Fourier expansions of modular forms at arbitrary cusps. After mentioning some applications of these expansions I will explain how to compute them. Three algorithms for the computation of Fourier expansions have appeared recently and one of them is joint work with Martin Dickson. In the second half of the talk I will talk about joint work with François Brunault, where we calculate the number fields generated by Fourier expansions at cusps as explicit cyclotomic extensions of the field generated by the coefficients at the cusp infinity. |
| Giresse Djomo | Okaso | An Algebraic approach of automorphic forms | In my paper, I am introducing a more focused algebraic aspect of the automorphic form theory particularly in the field of representation. Further, I leverage a deeper and strong understanding of representations series, isomorphism, automorphism, and group representation. |
| Manish Kumar | Pandey | Shimura lifts of certain class of modular forms of half-integral weight | G. Shimura defined a family of maps from the space of modular forms of half-integral weight to the space of modular forms of integral weight. A. Selberg in his unpublished work found explicitly this correspondence (the first Shimura map S1) for the class of forms which are products of a Hecke eigenform of level one and a Jacobi theta function. Later, B. Cipra generalized the work of Selberg to the case where Jacobi theta functions are replaced by the theta functions associated to Dirichlet character of prime power moduli, and the level one Hecke eigenforms are replaced by newforms of arbitrary level. D. Hansen and Y. Naqvi generalized Cipra's work (on the image of a class of modular forms under the first Shimura map S1) to cover theta functions associated to Dirichlet characters of arbitrary moduli. In this paper, we show that the earlier results can be modified to get similar results for the t -th Shimura lifts S_t , for any positive square-free integers t . |
| Yiannis | Petridis | Arithmetic Statistics of Modular Symbols | Modular symbols have been a useful tool to study the space of holomorphic cusp forms of weight 2, and the homology of modular curves. They have been the object of extensive investigations by many mathematicians including Birch, Manin, and Cremona. Mazur, Rubin, and Stein have recently formulated a series of conjectures about statistical properties of modular symbols in order to understand central values of twists of elliptic curve L-functions. Two of these conjectures relate to the asymptotic growth of the first and second moments of the modular symbols. In joint work with Morten S. Risager we prove these on average using analytic properties of Eisenstein series twisted with modular symbols. We also prove another conjecture predicting the Gaussian distribution of normalised modular symbols ordered according to the size of the denominator of the cusps. |

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| Ian | Petrow | The Weyl law for algebraic tori | A basic but difficult question in the analytic theory of automorphic forms is: given a reductive group G and a representation r of its L -group, how many automorphic representations of bounded analytic conductor are there? In this talk I will present an answer to this question in the case that G is a torus over a number field. |
| Angelo | Rendina | Kurokawa-Mizumoto congruences and degree 8 L-values | The "algebraic part" of rightmost critical L-value associated to the Delta cusp form has a factor of the large prime 691 in its denominator. This prime is also a factor of the 12th Bernoulli number, and is the modulo of congruence between the Hecke eigenvalues of the weight 12 Eisenstein series and the Delta cusp form itself: this is in accordance with a special case of the Bloch-Kato conjecture. In a joint paper with N. Dummigan and B. Heim, we show that the same phenomenon occurs when considering the spinor L-function associated to the tensor product of an elliptic cusp form and a Siegel cusp form, where the latter is congruent to a Saito-Kurokawa lift modulo a large prime dividing the algebraic part of the L-function associated to the corresponding pre-lift. |
| Boualem | Sadaoui | The multiple zeta values at the non positive integers | <p>In this talk, we relate the special value at a non positive integer $\underline{s} = (s_1, \dots, s_n) = -\underline{N} = (-N_1, \dots, -N_n)$ obtained by meromorphic continuation of the multiple zeta function</p> $Z(\underline{s}) = \sum_{\substack{\underline{m} \in \mathbb{N}^n \\ m_i \geq 1}} \frac{1}{(m_1 + \dots + m_n)^{s_1} \dots (m_n)^{s_n}}$ <p>to special values of the function</p> $Y(\underline{s}) = \int_1^{+\infty} \frac{1}{\prod_{i=1}^n (x_i + \dots + x_i^{s_i})} d\underline{x}.$ <p>for this, we use Raabe's formula and the Bernoulli numbers.</p> |

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| Abhishek | Saha | Integral representation and critical L-values for the standard L-function of a Siegel modular form | I will talk about some recent joint work with Pitale and Schmidt where we prove an explicit pullback formula that gives an integral representation for the twisted standard L-function for a holomorphic vector-valued Siegel cusp form of degree n and arbitrary level. In contrast to all previously proved pullback formulas in this situation, our formula involves only scalar-valued functions despite being applicable to L-functions of vector-valued Siegel cusp forms. Further, by specializing our integral representation to the case $n=2$, we prove an algebraicity result for the critical L-values in that case (generalizing previously proved critical-value results for the full level case). |
| Markus | Schwagenscheidt | Borcherds lifts of harmonic Maass forms | We extend Borcherds' regularized theta lift in signature $(2,1)$ to harmonic Maass forms whose non-holomorphic part is allowed to grow exponentially at the cusp. We encounter new singularities along geodesics in the upper half-plane. By computing the derivative of the Borcherds lift of a suitable harmonic Maass form, we recover the weight 2 modular integral of Duke, Imamoglu and Toth, which is given by a certain generating series of traces of geodesic cycle integrals of j . Additionally, we construct new Borcherds products of harmonic Maass forms. |
| Anup Kumar | Singh | Representations of a positive integer by octonary quadratic forms. | In this paper, we find formulas for the number of representations of certain diagonal octonary quadratic forms with some coefficients. We obtain these formulas by constructing explicit bases of the space of modular forms of weight 4 on some congruence subgroup with character. |
| Saurabh Kumar | Singh | Weyl bound for p -power twist of $GL(2)$ L-functions | Let f be a cuspidal eigenform (holomorphic or Maass) for the congruence group $\Gamma_0(N)$ with N square-free. Let p be a prime and let χ be a primitive character of modulus p^3 . We shall prove the Weyl-type subconvex bound $L\left(\frac{1}{2} + it, f \otimes \chi\right) \ll_{f, t, \epsilon} p^{r + \epsilon},$ where $\epsilon > 0$ is any positive real number. |
| Lejla | Smajlovic | On singular invariants for certain genus one arithmetic groups | We study the singular moduli problem corresponding to (two) canonical generators x_N and y_N of the holomorphic function field associated to certain genus one arithmetic groups, by which we mean the arithmetic and algebraic nature of the numbers $x_N(z)$ and $y_N(z)$ for any CM point z in the upper half plane. |

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| Fredrik | Stromberg | Computational aspects of spectral theory for non-congruence subgroups. | The spectral theory for congruence subgroups of the modular group is fairly well understood since Selberg and the development of the Selberg trace formula. In particular it is known that congruence subgroups have an infinite number of discrete eigenvalues (corresponding to Maass cusp forms) and there is extensive support towards Selberg's conjecture that there are no small eigenvalues for congruence subgroups. In contrast to this setting, much less is known for noncongruence subgroups of the modular group even though these groups are clearly arithmetic. In fact, it can be shown that under certain circumstances small eigenvalues must exist. And even the existence of infinitely many "new" discrete eigenvalues is not known for these groups. The main obstacle for developing the spectral theory further in this setting that there is in general no explicit formula for the scattering determinant. In this talk I will discuss computational methods and results for computing scattering determinants for non-congruence subgroups and in particular how this can be used together with a version of Weyl's law to provide (heuristic) certification of computed eigenvalues. |
| George | Turcas | On Fermat's equation over quadratic imaginary fields | Assuming a deep but standard conjecture in the Langlands programme, we prove Fermat's Last Theorem over $\mathbb{Q}(i)$. Under the same assumption, we also prove that, for all prime exponents $p \geq 5$, the Fermat's equation $a^p + b^p + c^p = 0$ does not have non-trivial solutions over $\mathbb{Q}(\sqrt{-2})$ and $\mathbb{Q}(\sqrt{-7})$. arxiv.org/abs/1710.10163 |
| Nahid | Walji | A refinement of strong multiplicity one | Given two distinct unitary cuspidal automorphic representations for $GL(n)/\mathbb{Q}$, we denote S to be the set of primes at which the associated Hecke eigenvalues differ. Under the assumption that the adjoint lifts are automorphic and furthermore cuspidal, we obtain a lower bound on the lower Dirichlet density of S . |
| Haowu | Wang | Non-existence of reflective modular forms | An even lattice of signature $(2,n)$ is called 2-reflective if it admits a non-constant holomorphic modular form whose divisor is contained in the (-2) -Heegner divisor. In this talk I prove the new classification result that there is no 2-reflective lattice when $n \geq 15$ and $n \neq 19$ except the even unimodular lattices of signature $(2,18)$ and $(2,26)$. |
| Shaul | Zemel | Heegner Divisors on Toroidal Compactifications of Orthogonal Shimura Varieties | Borcherds proved, using his theta lift, that the Heegner divisors on (open) orthogonal Shimura varieties behave like the coefficients of a modular form. We examine suitable extensions of these divisors to toroidal compactifications of such Shimura varieties, for which such a modularity result continues to hold. |