TITLE: AUTHENTICATION CODES FROM TRACE POWER FUNCTIONS

Robert Fitzgerald
(Based on work with Yasanthi Kottegoda)

ABSTRACT: Authentication codes are cryptosystems for sending a message plus a signature used to authenticate the message. We consider a system, proposed by Ding, Salomaa, Sole and Tian, which uses the trace of an extension of finite fields applied to a power of x. We compute the probability of a successful attack, either by substitution (change the message) or impersonation (change the signature). The work depends on old results about quadratic forms and new results on pairs of quadratic forms.

Benjamin Linowitz (University of Michigan)

TITLE: Selective orders in central simple algebras

ABSTRACT: Let K be a number field and B be a central simple algebra defined over K. In 1932, Albert, Brauer, Hasse and Noether explicitly characterized the finite extensions L of K which may be embedded into B. An integral refinement immediately suggests itself: given an order O in L and a maximal order M in B, when does there exist an embedding of O into M? This question turns out to be much more subtle. In this talk I'll survey the history of this problem and discuss some recent results with Tom Shemanske.

Alicia Marino
Wesleyan

TITLE: Finiteness of Strictly k-Regular Quadratic Forms

ABSTRACT: An integral quadratic form is said to be strictly k-regular if it primitively represents all quadratic forms of k variables that are primitively represented by its genus. We show that, for $k \geq 2$, there are finitely many inequivalent positive definite primitive integral quadratic forms of k+4 variables that are strictly k-regular. Our result extends a recent finiteness result of Andrew Earnest et al. (2014) on strictly regular quadratic forms of 4 variables.

Lenny Fukshansky

TITLE: On arithmetic lattices in the plane

We will discuss the distribution of similarity classes of arithmetic lattices in the plane. We introduce a natural height function on the set of such similarity classes, and give asymptotic

estimates on the number of all arithmetic similarity classes, semi-stable arithmetic similarity classes, and well-rounded arithmetic similarity classes of bounded height as the bound tends to infinity. We also briefly discuss some properties of the j-invariant corresponding to similarity classes of planar lattices. This is joint work with Pavel Guerzhoy and Florian Luca.

Matt Insall
Missouri Science and Technology

TITLE: A Minimal Congruence Lattice Representation of the Lattice M(p+1)

ABSTRACT: Let p be an odd prime. The unary algebra consisting of the dihedral group of order 2p, acting on itself by left translation, is a minimal congruence lattice representation of the lattice M(p+1).

David Goldberg,
Purdue University

TITLE: Reducibility of induced representations and poles of Langlands L—functions

ABSTRACT: In this talk we will give a survey of the deep connections between the theory of reducibility of parabolically induced representations for reductive p—adic groups and number theory in terms of the poles of Langlands L—functions. We'll discuss the theory of Knapp-Stein R—groups and touch on joint work with Kwangho Choiy and Dubravka Ban.

Nirosh T. Gamachchige and John P. McSorley
Department of Mathematics, Southern Illinois University, Carbondale

TITLE: Constructions of Double-Change Covering Designs when k = 4

ABSTRACT
A double-change covering design (dccd) based on the set [v]={1,2,…,v} with block size *k* is an ordered collection of *b* blocks, B={B_1,B_2,…,B_b}, each unordered subset of *k* distinct elements from [v], which obey: (1) each block differs from the previous block by two elements, and, (2) every unordered pair of [v] appears in at least one block. The object is to minimize b for a fixed v when k = 4. We present some minimal constructions of both linear and circular dccd for arbitrary v. Tight designs are those in which each pair is covered exactly once. Some non-existence results for tight designs and economical designs are considered.

Stacey (Steve) Harris

TITLE: Causal and algebraic structures of static- and stationary-complete spacetimes

ABSTRACT: Stationary spacetimes are those with a timelike Killing field; static spacetimes are stationary with submanifolds perpendicular to the Killing field. Completeness refers to to the Killing field being complete. Global causality properties have to do with the existence, non-existence, or almost-existence of closed timelike curves, and how well-behaved timelike curves are for convergence (existence of limit curves is called global hyperbolicity).

i will show how an algebraic construction, the fundamental cocycle--a cohomology class for static spacetimes, something looser for stationary ones--can be defined which controls the global causality properties of the spacetime. Among other things, the fundamental cocycle determines which quotients of a globally hyperbolic stationary-complete spactime inherit global hyperbolicity.

Larry J. Gerstein
University of California, Santa Barbara

TITLE: GRAPHS AND INTEGRAL QUADRATIC FORMS

ABSTRACT: Graphs and integral quadratic forms are both specified by symmetric matrices of integers. It is therefore natural to ask what the theory of quadratic forms can tell us about graphs. This does not seem to have been adequately addressed in the literature, and the talk will focus on the application of quadratic forms to the graph isomorphism problem.

Dr. James Ricci
Department of Mathematics and Computer Science

TITLE: The representation of integers by positive ternary quadratic polynomials

ABSTRACT: An integral quadratic polynomial is called regular if it represents every integer that is represented by the polynomial itself over the reals and over the p-adic integers for every prime p. It is called complete if it is of the form $Q(\bf{x} + \bf{v})$, where Q is an integral quadratic form in the variables $\bf{x} = (x_1, \ldots, x_n)$ and $\bf{v}$ is a vector in $\mathbb{Q}^n$. Its conductor is defined to be the smallest positive integer c such that $c\bf{v} \in \mathbb{Z}^n$. We prove that for a fixed positive integer c, there are only finitely many equivalence classes of positive primitive ternary regular complete quadratic polynomials with conductor c. This generalizes the analogous finiteness results for positive definite regular ternary quadratic forms by Watson in 1954 and for ternary triangular forms by Chan and Oh in 2013. This is joint work with Wai Kiu Chan.

Csaba Biro
University of Louisville

ABSTRACT: We define the radocity of a graph as the greatest nonnegative integer k such that every pair of disjoint subsets of vertices (U,V) for which $|U|\leq k$ and $|V|\leq k$, there is a witness vertex w such that w is adjacent to every vertex in U, and no vertex in V. The Rado graph is the unique graph with infinite radocity. We study a random graph building process that we call ``uniform attachment model'', and we study the radocity of the resulting infinite graph. In certain special cases (when the radocity is clear), we find a much more refined description of the resulting infinite random graph. Joint work with Udayan B. Darji.

B.L.K. Gunawardana and John. P. McSorley
Department of Mathematics, Southern Illinois University, Carbondale.

TITLE: A VARIATION ON A MUTUALLY ORTHOGONAL LATIN SQUARES

ABSTRACT: A Latin square of order n^2 is an n x n array in which each row and column contains symbols from an n - set, $S = \{a_1, \dots, a_n\}$ exactly once. If two Latin squares L_1 and L_2 of same order can be joined such that each of the n^2 ordered pairs (a_i, a_j) appears exactly once, then L_1 and L_2 are said to be orthogonal. This project will involve a variation of this idea. We define orthogonality of two Latin squares L_m and L_n, for $m < n$, as follows:
When we place an m x m Latin square L_m inside an n x n Latin square L_n, in all possible ways, the so obtained m^2 ordered pairs (a_i, a_j) are always distinct.
We first investigate the situation when $m = 2$ and $n = p$, where p is a prime.

Andrew Ylvisaker

TITLE: Spectra of Small Relation Algebras

ABSTRACT: We define representations under any sub-signature of the variety of relation algebras in a manner compatible with classical representation and weak representation. Under this definition, we explore representability and spectra of various important relation algebras under various sub-signatures of the variety. We also present representability results which apply to any relation algebra for certain sub-signatures, including a new proof of a result due to Jónsson and Tarski.

Tiffany Stellhorn
(SIUE Graduate Student)

TITLE: An Extension of Nilpotent Adjacency Matrices for Graph Coloring

ABSTRACT: Nilpotent adjacency matrix methods have previously been applied to path and cycle enumeration problems. Extending them to vertex and edge colorings leads to new algebraic formulations of graph coloring problems. *Mathematica* examples will also be presented.

Lisa Dollar
SIUE Graduate Student.

TITLE: Square and kth Root Properties of Zeons

ABSTRACT: Zeon algebras can be thought of as commutative Grassmann (Clifford) algebras. This talk will focus on zeons with inverses and kth roots. Recursive formulas for finding inverses and kth roots and a closed formula for finding square roots are presented.

Lawrence Valby
Indiana University

TITLE: The Universal Theory of "Positive Quantifier-Free Algebras" and Various Expansions

ABSTRACT: One way to describe Boolean algebras is as the algebras that arise in the following way. We consider some operations on the powerset of a set, such as intersection, union, 1, 0, and complement (the operations chosen should compositionally generate all the Boolean operations). This gives us what we might call a powerset algebra. The Boolean algebras are the subalgebras of these powerset algebras.

We may do an analogous thing for first order operations instead of Boolean operations. Instead of just looking at all the subsets of a set, we may look at all the (finitary) relations of a set. Just like how every propositional formula may be thought of as an operation accepting unary relations as input and outputting a unary relation, so too can every first order formula be thought of as an operation accepting relations as input and outputting a relation. A natural approach to algebraicize first order logic is then to consider multisorted algebras where there is a sort for each possible arity of relation.

We axiomatize the subalgebras of the multisorted algebras that arise in this way. The essential ideas are already illustrated in the case of positive quantifier-free logic (just like how Stone's representation theorem for Boolean algebras follows easily from that for distributive lattices).

Jingbo Liu
Wesleyan University

TITLE: Representations of integral Hermitian forms by sums of norms

ABSTRACT: In 1770, Lagrange proved the famous four square theorem, which says that each positive integer a can be represented as a sum of four squares. This theorem has been generalized in many directions since then. One interesting generalization is to consider the representations of integral quadratic forms of more variables by sums of squares.
We define gZ(n) to be the smallest number of squares whose sum represents all positive definite integral quadratic forms of n variables over Z that are represented by some sums of squares. The existence of gZ(n) and an explicit upper bound was given by Icaza in 1996. An improved upper bound was obtained later by Kim and Oh in 2005.
Similarly, for Hermitian forms over the ring of integers OE of imaginary quadratic field E, we define gE(n) to be the smallest number of norms whose sum represents all positive definite integral Hermitian forms of n variables over OE that are represented by some sums of norms. In this talk, we will present a generalization of Kim and Oh's method and give an explicit upper bound for gE(n) for any imaginary quadratic field E and positive integer n.

Caroline Terry

TITLE: Zero-one laws for discrete metric spaces

ABSTRACT: Fix an integer $r \geq 3$. Given an integer n, we define $M_r(n)$ to be the set of metric spaces with underlying set $\{1,\ldots, n\}$ such that the distance between any two points lies in $\{1,\ldots, r\}$. We present results describing the approximate structure of these metric spaces when n is large. As a consequence of these structural results in the case when r is even, we obtain a first-order labeled 0-1 law. This is joint work with Dhruv Mubayi.

Ralph McKenzie

TITLE: Speaking of mathematicians and theorems I have known

ABSTRACT: I began my career as a logician, member of the group at Berkeley. This talk mines memories of fifty years research, teaching, and travel, wandering somewhere between logic and algebra. You never know (I never know) what this universal algebraist will say before the talk is done.

Alexander Berkovich
University of Florida

ABSTRACT: In this talk I discuss my recent work on resolution of Kaplansky 's conjectures for the representation properties of certain ternary quadratic forms such as 9*x^2 + 16*y^2 +36*z^2 +16*y*z + 4*x*z+8*xy and x^2+ y^2 +3*z^2.

Shuichiro Takeda
University of Missouri

TITLE: A proof of the Howe duality conjecture

ABSTRACT: In this talk, after reviewing basics of the local theta correspondences I will talk about a residue-characteristic-free proof of the Howe duality conjecture. This is a joint work with Wee Teck Gan.

Joshua Boone
Lincoln Memorial University

TITLE: The projective order of a 2x2 matrix

ABSTRACT: The n-th power of a square matrix M, written M^n, can be found without explicitly multiplying n copies of M together. We will show two interpretations and formulas for M^n, when M has integer entries. We then say that M has *projective order* n if M^n is a scalar multiple of the identity matrix $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$. We discuss for which values of n this is possible. Examples will be given throughout. This presentation is accessible to undergraduate mathematics majors, as well as mathematically-inclined non-majors.

Wahidah Alsibiani
King Abdulaziz University

TITLE: Reducibility of parabolically induced representations

ABSTRACT: Reducibility of parabolically induced representations of p-*adic* groups is one of the basic questions in the representation theory, and generally a hard question. This paper presents how to reduce this question to determining reducibility of representations induced from maximal parabolic subgroups, which signifcantly simplifies the problem.

Let F be a nonarchimedean local field and G be the group of F-rational points of a connected reductive group defined over F. Fix a maximal split torus T in G. Let W be the Weyl group of G. Fix a minimal parabolic subgroup $P = P_\emptyset$ containing T. Let Δ be the corresponding set of simple

roots. For $\theta \subseteq \Delta$, we denote by $P_{\theta=} M_\theta U_\theta$ the standard parabolic subgroup corresponding to θ. Let $\mathfrak{R}(G)$ denote the category of smooth respresentations of G on complex vector spaces. We denote by $Ind_{P_\theta}^{G} : \mathfrak{R}(M_\theta \rightarrow \mathfrak{R}(G)$ the functor of normalized parabolic induction. The primary goal is proving the theorem below:

Theorem: Let $\theta \subseteq \Delta$. Let $P_{\theta=} M_\theta U_\theta$. Let σ be an irreducibile supercuspidal representation of M_θ and $I(\sigma) = Ind_{P_\theta}^{G} \sigma$. Suppose that $I(\sigma)$ has an irreducible subquotient which does not appear as a subrepresentation in $I(\sigma)$. Then there exists $w_\theta \in W$ and $\Omega \subseteq \Delta$ such that $\Omega = w_0(\theta) \cup \{\alpha\}$ for some simple root α, and

$$Ind_{w_{0(M_\theta)}}^{M_\Omega} w_0 \sigma$$

is reducible.

Using this theorem, we can significantly simplify the problem of determining reducibility of parabolically induced representations.

Kamal Adhikari
SIUC Grad Student

TITLE: Realizing a simple Smale flow with a 3-band template

ABSTRACT: A chaotic saddle set of a simple Smale flow can be modeled by using a branched manifold called a template and the knot types of periodic orbits can be studied within the template. M. Sullivan used the Lorenz template to study the Lorenz-Smale flow. Bin Yu used 2-band template models and Elizabeth Haynes used a unversal four band template to study a Smale flow. In the talk, we will use a 3-band template model and observe the linking structure of attracting and repelling orbits of the non-singular Smale flow when the saddle set is modeled by using this template.

Pete Clark
University of Georgia

ABSTRACT: Rabinowitsch showed that for a positive integer C, the polynomial x^2+x+C takes on prime or unit values for all 0 <= x <= C-2 if and only if the quadratic order of discriminant 1-4C is a PID. Several proofs of this result have been given over the years: using the Minkowski bound, using Dedekind-Hasse norms and using Gauss's theory of binary quadratic forms. We will present an analogue of the Rabinowitsch Criterion over a polynomial ring k[t], for a field k of characteristic different from 2 but otherwise arbitrary. All three classical proofs carry over. We will give brief indications of two of them and explain the argument involving quadratic forms in detail.

Anna Haensch
Dequesne University

TITLE: Integral representations by sums of polygonal numbers

ABSTRACT: In this talk we will consider representations by ternary sums of polygonal numbers. A sum of three polygonal numbers is a ternary inhomogeneous quadratic polynomial, and by completing the square the representation problem for such a ternary sum can be easily recast as a representation problem for a coset of some quadratic lattice. Using the machinery of quadratic lattices, we will consider when a sum of three polygonal numbers represents all but finitely many positive integers.

Wai Kiu Chan
Wesleyan University

TITLE: On Waring's problem for integral quadratic forms

ABSTRACT: Abstract: In a 1930 paper, Louis Mordell posed the following what he called a new Waring's Problem: is every positive definite integral quadratic form in n variables a sum of n + 3 squares of integral linear forms? A few years later Chao Ko answered Mordell's question in the affirmative when n ≤ 5 but provided an example of a 6-variable positive integral quadratic form which cannot be written as a sum of any squares of linear forms. In her 1992 thesis, Maria Icaza defined gZ(n) to be the smallest integer such that if an integral quadratic form in n variables can be written as a sum of squares of integral linear forms, then it must be written as a sum of gZ(n) squares of integral linear forms. She showed that gZ(n) is finite and provided an upper bound which is at least an exponential of nn2.

In this talk, we will survey some more recent results on gZ(n) and explain our work on an upper bound on gZ(n) which is at most an exponential of √n. Generalization to integral hermitian forms will also be discussed. This is a joint work with Constantin Beli, Maria Icaza, and Jingbo Liu.

G. Stacey Staples
SIUE

TITLE: Graph-induced operators on Clifford algebras

ABSTRACT: The interface between operator theory and graph theory has been fer-tile ground for research in recent years. In the Clifford algebra context, properties of spinors have been applied to the study of maximal cliques and a number of graph enumeration problems. Fermion algebras are isomor-phic to Clifford algebras of appropriate signature, and zeon algebras can be thought of as commutative subalgebras of fermion algebras. Operators on fermion and zeon algebras induced by the action of adjacency matrices and combinatorial Laplacians reveal information about a graph's spanning trees, cycles & matchings. Combining the properties of these induced oper-ators one can define a "fermion-zeon convolution" operator that enumerates a graph's Hamiltonian cycles.

Siddharth Bhaskar

TITLE: Is there a notion of stability for recursion?

ABSTRACT: Abstract Stability theory roughly divides rst-order structures into tame and wild. Symptoms of wildness include the ability to encode the natural numbers, dene long ordered chains, and code tuples by singletons. On the other hand, denable sets of tame structures often admit notions of dimension or other regularity properties.

Over any rst-order structure there are also several notions of computabil-ity. For example, we may consider computability by generalized machines like owchart programs, or by generalized rst-order functional programs called re-cursive programs. The recursion theory of any structure with respect to some notion of recursion can be said to be wild if it encodes a copy of the nat-ural numbers, computes a total order, has pairing or unpairing functions, or has universal functions. Friedman and others proved many of these properties equivalent.

In this talk we hypothesize the existence of a stability theory for recursion, which divides rst-order structures into tame and wild on the basis of their computable, as opposed to rst-order denable, functions and relations. Our evidence for this is twofold. One is the sequence of recursion-theoretic wildness properties, like those mentioned above, which are similar to the usual rst-order ones. Secondly, we have at least one concrete example of a recursion-theoretically tame structure, whose computable sets satisfy some regularity properties. Moreover, the proof of tameness uses a measure of complexity on sets systems that we believe is new but bears striking similarities to VC-dimension.

Jeremy Alm
Illinois College

TITLE: Relation-algebraic sumset problems in $\mathbb{Z}/p\mathbb{Z}$

ABSTRACT: In the 80's, Comer conceived of a method for construction representations for a certain infinite class of relation algebras. A *color algebra* or *Ramsey algebra* in m colors is a finite integral symmetric RA with atoms 1', $a_1, \ldots, a_m$ such that

$$a_i;\ a_i = a_i, \text{ and}$$

$$a_i;\ a_j = 0', i \neq j.$$

Comer's method uses the multiplicative cosets of a subgroup of $(\mathbb{Z}/p\mathbb{Z})x$ to represent the a_i's. Comer produced constructions of m-color algebras for m = 2, 3, 4, 5 in 1983. In 2011, Maddux produced constructions for m = 6, 7 using the same method as Comer but with a 2011 computer. Maddux failed to construct an algebra for m = 8. Jake Manske and the author rediscovered Comer's method, and showed that Comer's method does not work for M = 8, but does work for all m between 9 and 400, except possibly for m = 13. In January 2016, the author completely rewrote the program to search for these represtnations, and now we have representations for m up through 600.

We also give a Ramsey-type upper bound on the modulus of p of a representation over $\mathbb{Z}/p\mathbb{Z}$ of Comer's type. In particular, we show that p < m^4, which is significantly better that what one gets from the Ramsey number $R_m(3)$, which is $e \cdot m!$. This allows us to rule out Comer's method for m = 13.

Austin Mohr
Nebraska Wesleyan University

TITLE: Checking Hats with the Lopsided Lovasz Local Lemma

ABSTRACT: The famous Hatcheck Problem imagines n individuals checking their hats at a restaurant and each receiving a randomly chosen hat after dinner. What is the probability that nobody receives their own hat? We will explore a new proof that this probability tends to 1/e with n. The proof makes use of the lopsided Lov´asz local lemma and is striking for two reasons. First, there is a precise sense in which the original local lemma is wholly unsuited for the task, yet the seemingly mild generalization found in the lopsided version allows it to fully circumvent this difficulty. Second, the probabilistic content of the proof is readily transformed into a simple injection argument. The proof therefore demonstrates how one may wield a more powerful version of the local lemma through elementary means.

Julia Knight

TITLE: Lengths of roots of polynomials in a Hahn field

ABSTRACT: For a divisible ordered Abelian group G, and a field K, the Hahn field K((G)) consists of generalized power series with terms corresponding to elements of a well ordered subset of G and coefficients in K. It is well-known that for a divisible ordered Abelian group G, and a field K that is algebraically closed, or real closed, the Hahn field K((G)) is also algebraically closed, or real closed. The ideas go back to Newton and Puiseux. For an element r = Pg∈S agtg, the support is the set of $g \in G$ with $a_g \neq 0$, and the length is the order type of the support. Our main goal is to bound the length of a root r of a polynomial over K((G)) in terms of the lengths of the coefficients. We also consider "truncation closed subfields" R of K((G)). We give bounds on the lengths of elements of R in terms of the length α of a sequence forming a "truncation closed" transcendence basis for R over K. For α = 1, results of Newton and Puiseux give the bound ω. For finite n ≥ 2, we have the bound $\omega^{\omega^{(n-1)}}$. These bounds are sharp. We have bounds for other countable α, and even for uncountable α.

Johnny Porter

TITLE: A generalization of the Collins-Roscoe mechanism and D-spaces

ABSTRACT: Motivated by recent work on monotonically monolithic spaces, we introduce a formal generalization of the Collins-Roscoe mechanism (F). A T1 topological space X has W satisfying (M) if W = (W(F) : F ∈ [X]<ω) where each W(F) is a network at each point of F and (M) for each A ⊆ X, S{W(F) : F ∈ [A]<ω} is a network for any x ∈ A.
If condition (M) is weakened to for each A ⊆ X, S{W(F) : F ∈ [A]<ω} is a network for some x ∈ A\A, then we say W satisfies (wM). If W = (W(F) : F ∈ [X]<ω) satisfies (wM) and each W(F) = ∪n∈ωWn(F) where each Wn(F) is a sheltering family, then we say W is σ-sheltering (wM). We show that σ-sheltering (wM) spaces are D-spaces improving recent results of Peng, Feng and Porter. These results are obtained jointly with Ziqin Feng.

Timothy McNicholl
Iowa State University

TITLE: Computable categoricity in computable analysis

ABSTRACT: Computable structure theory has traditionally focused on countable structures. A recent trend in computable analysis though is to apply notions such as computable categoricity to uncountable structures such as polish spaces and Banach spaces. We will survey recent results on computable polish spaces, $C[0,1]$, and ℓ^p.

John McSorley
Southern Illinois University Carbondale

TITLE: A new technique for finding small Kirkman Covering and Packing Designs; a KCD(11), a canonical KCD(13), and more examples

ABSTRACT: We present a new technique which we call the ‘type/– unlabelled/labelled’ technique for finding, or determin-ing the non-existence of, small Kirkman covering and packing designs. Using this technique and different com-putational methods, we construct a new KCD(11), and a new canonical KCD(13), and make some progress on the existence question of a KPD(19, 8).

Joseph Hundley

TITLE: Multivariable Rankin-Selberg Integral for a product of twisted spinor L-functions

ABSTRACT: We consider a new integral representation for $L(s_1, \Pi \times \tau_1)L(s_2, \Pi \times \tau_2)$ where Π is a globally generic cuspidal representation of GSp_4, and τ_1 and τ_2 are two cuspidal representations of GL_2 having the same central character. As and application, we find a new period condition for two such L functions to have a pole simultaneously. This points to an intriguing connection between a Fourier coefficient of a residual representation on $GSO(12)$ and a theta function on $Sp(16).$ A similar integral on $GSO(18)$ fails to unfold completely, but in a way that provides further evidence of a connection.

Jerzy Kocik
Southern Illinois University Carbondale

TITLE: The geometry and algebra of the celestial sphere: the Lorentz group tamed

ABSTRACT: The conformal transformations of the celestial sphere induced by the Lorentz group will be represented by the pseudo-unitary groups over the division algebras (real and complex numbers and quaternions). This correspondence has a very clear geometric interpretation and allows one to perform the so-called relativistic addition of velocities in an unexpectedly simple manner.

Aaron Wood
University of Missouri

TITLE: Characters of SL(2,Z_p) arising from the Weil representation

ABSTRACT: The special linear group over the ring of integers of a non-archimedean field admits nontrivial characters in exactly two instances: SL_2(Z_p) for p = 2 and p = 3. Indeed, in these instances, the quotient of SL_2(Z_p) by its commutator subgroup is of size 4 and 3, respectively. In this talk, we will use a minimal odd type of the Weil representation of the metaplectic cover of SL_2(Q_p) to produce these characters in a `natural' way.