BIRS WORKSHOP

"LIFTING PROBLEMS AND GALOIS THEORY" AUGUST 16–21, 2015

Web Pages and Research Interests of Participants

Jeff Achter.
Webpage: http://www.math.colostate.edu/~achter/
Research interests: Arithmetic geometry. In particular: abelian varieties in positive characteristic.
Recent paper: "A heuristic for the distribution of point counts for random curves over a finite field" with D. Erman, K. Kedlaya, M. Matchett Wood, D. Zureick-Brown. http://arxiv.org/abs/1410.7373

Lior Bary-Soroker.
Webpage: http://www.math.tau.ac.il/~barylior/
Research interests: Number theory. In particular: field arithmetic, with connections to profinite groups and finite fields.
Recent paper: "On the function field analogue of Landau's theorem on sums of squares" with Y. Smilansky, A. Wolf. http://arxiv.org/abs/1504.06809

Frauke Bleher.
Webpage: http://homepage.divms.uiowa.edu/~fbleher/
Research interests: Representation theory of groups and algebras, with applications to algebraic and arithmetic geometry. In particular: deformations of modules and complexes, orbit closures, degenerations of modules.
Recent paper: "The geometry of finite dimensional algebras with vanishing radical square" with T. Chinburg, B. Huisgen-Zimmermann. http://arxiv.org/abs/1407.3045

Irene Bouw.
Webpage: http://www.uni-ulm.de/mawi/rmath/mitarbeiter/bouw.html
Research interests: Arithmetic geometry. In particular: covers of curves, lifting problems, L-functions, theta functions.
Recent paper: "The functional equation for L-functions of hyperelliptic curves" with M. Börner, S. Wewers. http://arxiv.org/abs/1504.00508

Anna Cadoret.
Webpage: http://www.math.polytechnique.fr/~cadoret/
Research interests: Arithmetic geometry and number theory. In particular: étale fundamental groups, ℓ-adic and mod ℓ Galois representations, étale cohomology, curves and abelian schemes, motives, Shimura varieties, algebraic stacks, moduli spaces.
Recent paper: "On the geometric image of $\mathbb{F}_\ell$-linear representations of étale fundamental groups" with A. Tamagawa.
http://www.math.polytechnique.fr/~cadoret/JordanNorilIndepFinal.pdf

Ted Chinburg.
Webpage: http://www.math.upenn.edu/~ted/
Research interests: Number theory and arithmetic and hyperbolic geometry. In particular: Galois module structure, values of L-functions, hyperbolic three-manifolds, arithmetic groups, deformation theory, group actions on varieties, Arakelov theory, capacity theory.
Recent paper: "Geodesic curves on Shimura surfaces" with M. Stover.
http://arxiv.org/abs/1506.03299

Rachel Davis.
Webpage: http://www.math.purdue.edu/~davis705/
Research interests: Number theory. In particular: Galois representations.
Recent paper: "Arithmetic properties of the Frobenius traces defined by a rational abelian variety" with A.C. Cojocaru, A. Silverberg, K.E. Stange.
http://arxiv.org/abs/1504.00902

Pierre Dèbes.
Webpage: http://math.univ-lille1.fr/~pde/
Research interests: Number theory and arithmetic geometric. In particular: irreducibility of hypersurfaces, indecomposable polynomials, twisted covers, Tchebotarev theorems.
Recent paper: "On the Malle conjecture and the self-twisted cover."
http://arxiv.org/abs/1404.4074

Taylor Dupuy.
Webpage: http://math.huji.ac.il/%7Edupuy/
Research interests: Arithmetic deformation theory and the algebraic theory of differential equations (differential algebra). In particular: p-jet spaces, p-derivations, Frobenius endomorphisms.
Recent paper: "Deligne-Illusie classes I: Lifted torsors of lifts of the Frobenius for curves."
http://arxiv.org/abs/1403.2025

Michel Emsalem.
Webpage: http://math.univ-lille1.fr/d7/user/135
Research interests: Arithmetic geometry. In particular: descent varieties, fundamental groups, lifting Galois sections.
Recent paper: "Sur l'existence du schéma en groupes fondamental" with M. Antei, C. Gasbarri. http://arxiv.org/abs/1504.05082

Arno Fehm.
Webpage: http://www.math.uni-konstanz.de/~fehm/
Research interests: Number theory. In particular: function fields, ample fields, Hilbertian fields, Galois representations, henselian valued fields.
Recent paper: "The existential theory of equicharacteristic henselian valued fields" with W. Anscombe. http://arxiv.org/abs/1501.04522

Brett Frankel.
Webpage: http://www.math.upenn.edu/~frankelb/
Research interests: Arithmetic geometry. In particular: representation varieties, character varieties, étale fundamental groups.

Marco Garuti.
Webpage: http://mgaruti.weebly.com
Research interests: Algebraic and arithmetic geometry. In particular: algebraic groups and p-divisible groups, and curves.
Recent paper: "On the 'Galois closure' for finite morphisms."
http://www.math.unipd.it/~mgaruti/quiet.pdf

Robert Guralnick.
Webpage: http://dornsife.usc.edu/cf/faculty-and-staff/faculty.cfm?pid=1003312
Research interests: Group theory and its application to problems in arithmetic algebraic geometry. In particular: finite and algebraic groups, linear and permutation representations, coverings of curves, Galois theory.
Recent paper: "Surjective word maps and Burnsides p^aq^b theorem" with M. Liebeck, E. O'Brien, A. Shalev, P. Tiep. http://arxiv.org/abs/1505.00718

David Harbater.
Webpage: http://www.math.upenn.edu/~harbater/
Research interests: Algebraic geometry. In particular: Galois theory, fundamental groups, covering spaces, quadratic forms, central simple algebras, local-global principles.
Recent paper: "Differential Galois groups over Laurent series fields" with J. Hartmann, A. Maier. http://arxiv.org/abs/1501.06884

Armin Holschbach.
Webpage: http://www.mathi.uni-heidelberg.de/~holschbach/
Research interests: Arithmetic geometry. In particular: Chebotarev density theorems, étale contractible varieties in positive characteristic.
Recent paper: "Étale contractible varieties in positive characteristic" with J. Schmidt, J. Stix. http://arxiv.org/abs/1310.2784

Valentijn Karemaker.
Webpage: http://www.staff.science.uu.nl/~karem001/
Research interests: Algebraic number theory and arithmetic geometry. In particular: adelic algebraic groups, supersingular curves, abelian varieties, Galois representations.
Recent paper: "Large Galois images for Jacobian varieties of genus 3 curves" with S. Arias-de-Reyna, C. Armana, M. Rebolledo, L. Thomas, N. Vila.
http://arxiv.org/abs/1507.05913

Kiran Kedlaya.
Webpage: http://math.ucsd.edu/~kedlaya/
Research interests: Number theory and arithmetic algebraic geometry. In particular: p-adic analytic methods in arithmetic geometry, p-adic Hodge theory, algorithms in arithmetic geometry, interactions between arithmetic geometry and computer science.
Recent paper: "Motivic Serre group, algebraic Sato-Tate group and Sato-Tate conjecture" with G. Banaszak. http://arxiv.org/abs/1506.02177

Aristides Kontogeorgis.
Webpage: http://users.uoa.gr/~kontogar/
Research interests: Arithmetic geometry. In particular: automorphims of curves, p-adic uniformization, fields of moduli, fields of definition, deformations, Galois module structure, Weierstrass semigroups.
Recent paper: "Automorphisms of the Generalized Fermat curves" with R.A. Hidalgo, M Leyton-Álvarez, P. Paramantzoglou. http://arxiv.org/abs/1409.3063

Christian Liedtke.
Webpage: http://www-m11.ma.tum.de/liedtke/
Research interests: Algebraic and arithmetic geometry. In particular: algebraic surfaces, unirational surfaces, K3 surfaces, Enriques surfaces, moduli and lifting, fundamental groups.
Recent paper: "Good reduction of K3 surfaces" with Y. Matsumoto.
http://arxiv.org/abs/1411.4797

Sophie Marques.
Webpage: http://files.nyu.edu/sm5439/public/index.html
Research interests: Arithmetic geometry. In particular: tame actions on group schemes, tame stacks, moduli spaces, ramification theory.
Recent paper: "Holomorphic differentials of solvable Galois towers of curves over a perfect field" with K. Ward. http://arxiv.org/abs/1507.07023

Danny Neftin.
Webpage: http://www-personal.umich.edu/~neftin/
Research interests: Algebra and number theory. In particular: Brauer groups, Galois theory, algebraic number theory, field arithmetic, profinite groups.
Recent paper: "The Sylow subgroups of the absolute Galois group Gal(Q)" with L. Bary-Soroker, M. Jarden. http://arxiv.org/abs/1403.3266

Andrew Obus.
Webpage: http://people.virginia.edu/~aso9t/
Research interests: Arithmetic geometry. In particular: Galois theory, local lifting property, lifting problems of curves, fields of moduli.
Recent paper: "A generalization of the Oort conjecture."
http://arxiv.org/abs/1502.07623

Frans Oort.
Webpage: http://www.staff.science.uu.nl/~oort0109/
Research interests: Arithmetic algebraic geometry. In particular: complex multiplication and lifting problems; moduli spaces of abelian varieties and of algebraic curves in positive charateristic, p-divisible groups and finite group schemes; Newton Polygons, stratifications and foliations; Hecke orbits on moduli spaces.
Recent book: "Complex multiplication and lifting problems" with C.-L. Chai and B. Conrad. Mathematical Surveys and Monographs, Vol. 195. American Mathematical Society, Providence, RI, 2014. http://www.ams.org/bookstore-getitem/item=SURV-195

Jennifer Park.
Webpage: http://www.math.mcgill.ca/jpark/
Research interests: Number theory and algebraic geometry. In particular: class numbers, hyperelliptic curves, symmetric powers of curves, tropical curves.
Recent paper: "Explicit arithmetic of Jacobians of generalized Legendre curves over global function fields" with L. Berger, C. Hall, R. Pannekoek, R. Pries, S. Sharif, A. Silverberg, D. Ulmer. http://arxiv.org/abs/1505.00021

Rachel Pries.
Webpage: http://www.math.colostate.edu/~pries/
Research interests: Arithmetic geometry: In particular: moduli spaces of curves and abelian varieties, Galois theory of curves in positive characteristic.
Recent paper: "On the existence of ordinary and almost ordinary Prym varieties" with E. Ozman. http://arxiv.org/abs/1502.05959

Christalin Razafindramahatsiaro.
Webpage: http://users.aims.ac.za/~talin/
Research interests: Arithmetic geometry. In particular: arithmetic and geometry of curves.
Recent paper: "Elliptic curves and congruent numbers."
http://users.aims.ac.za/~talin/PGD-Essay-Template-2009_10.pdf

Zachary Scherr.
Webpage: http://www.math.upenn.edu/~zscherr/
Research interests: Arithmetic geometry and arithmetic dynamics. In particular: abelian surfaces, S-units, Belyi maps, Pell equations.
Recent paper: "Uniform boundedness of S-Units in arithmetic dynamics" with H. Krieger, A. Levin, T.J. Tucker, Y. Yasufuku, M. Zieve. http://arxiv.org/abs/1406.1990

Jeroen Sijsling.
Webpage: https://sites.google.com/site/sijsling/
Research interests: Arithmetic geometry. In particular: Galois obstruction and descent, moduli spaces, Belyi maps.
Recent paper: "On explicit descent of marked curves and maps" with J. Voight.
http://arxiv.org/abs/1504.02814

Jack Sonn.
Webpage: http://www2.math.technion.ac.il/~sonn/
Research interests: Algebraic number theory. In particular: Galois theory, Brauer groups of fields.
Recent paper: "Quadratic residues and difference sets" with V.F. Lev.
http://arxiv.org/abs/1502.06833

Padmavathi Srinivasan.
Webpage: http://math.mit.edu/~padma_sk/
Research interests: Algebraic geometry and number theory. In particular: zeta functions, Tamagawa numbers, conductors.
Recent paper: "Zeta functions of a class of Artin-Schreier curves with many automorphisms" with I. Bouw, W. Ho, B. Malmskog, R. Scheidler, C. Vincent.
http://arxiv.org/abs/1410.7031

Peter Symonds.
Webpage: http://www.maths.manchester.ac.uk/~pas/
Research interests: Interaction between algebra and geometry, using representation theory and cohomology of groups. In particular: profinite groups, group actions on rings and varieties.
Recent paper: "Degree bounds on homology and a conjecture of Derksen" with M. Chardin. http://arxiv.org/abs/1410.0150

Sebastian Tomaskovic-Moore.
Webpage: http://www.math.upenn.edu/~moose/
Research interests: Number theory and arithmetic geometry. In particular: Galois structure of p-adic unit groups.

Dajano Tossici.
Webpage: https://sites.google.com/site/dajanotossici/
Research interests: Arithmetic geometry. In particular: group schemes, Sekiguchi-Suwa theory, good reduction, extension of torsors.
Recent paper: "Models of the group schemes of roots of unity" with A. Mézard, M. Romagny. http://arxiv.org/abs/1104.2232

Daniele Turchetti.
Webpage: http://webusers.imj-prg.fr/~daniele.turchetti/
Research interests: Algebraic geometry and number theory, non-Archimedean analytic geometry, interplay between positive and zero characteristic. In particular: ramification theory, lifting problems, Hurwitz trees.
Recent paper: "Weil representation and metaplectic groups over an integral domain" with G. Chinello. http://arxiv.org/abs/1309.5181

Christelle Vincent.
Webpage: http://math.stanford.edu/~cvincent/
Research interests: Number theory. In particular: Weierstrass points on Drinfeld modular curves, curves defined over finite fields.
Recent paper: "Zeta functions of a class of Artin-Schreier curves with many automorphisms" with I. Bouw, W. Ho, B. Malmskog, R. Scheidler, P. Srinivasan.
http://arxiv.org/abs/1410.7031

Kenneth Ward.
Webpage: http://shanghai.nyu.edu/academics/faculty/kenneth-ward
Research interests: Number theory and arithmetic geometry. In particular: point counting, exponential sums, structure of differentials.
Recent paper: "Holomorphic differentials of solvable Galois towers of curves over a perfect field" with S. Marques. http://arxiv.org/abs/1507.07023

Bradley Weaver.
Webpage: http://www.math.virginia.edu/people/brw4sz
Research interests: Arithmetic geometry.

Benjamin Weiss.
Webpage: http://www.math.umaine.edu/~weiss/
Research interests: Analytic and algebraic number theory, convex geometry and its applications. In particular: function fields, local fields, Galois groups, class groups, quadratic forms, applications of Poisson summation.
Recent paper: "Chebyshev mappings of finite fields" with J. Rosen, Z. Scherr, M. Zieve. http://www.math.umaine.edu/~weiss/monthly-cheb.pdf

Stefan Wewers.
Webpage: http://www.uni-ulm.de/mawi/rmath/mitarbeiter/wewers.html
Research interests: Number theory and arithmetic geometry. In particular: quotient singularities and semistable reduction, the local lifting problem, the nonabelian Chabauty method, deformations, Belyi maps, Artin characters, Hurwitz trees.
Recent paper: "The functional equation for L-functions of hyperelliptic curves" with I. Bouw, M. Börner. http://arxiv.org/abs/1504.00508

Michael Zieve.
Webpage: http://www.math.lsa.umich.edu/~zieve/
Research interests: Algebra, number theory, algebraic geometry, dynamical systems, discrete mathematics, complex analysis, algebraic topology, theoretical computer science, and cryptography. In particular: S-units, Belyi maps, Fermat curves and surfaces, polynomial orbits, Chebyshev mappings, monodromy.
Recent paper: "Factorizations of certain bivariate polynomials."
http://arxiv.org/abs/1407.4567