

News Letter

Committee for Grants & Research

School of Arts and Sciences

Department of Mathematics
Scholarly Achievements:
2009-2010 Academic Year

Information compiled by Samar ElHitti and Laura Ghezzi¹

Committee

Hans Schoutens – chair

Oleg Berman
Zhao Chen
Ann Delilkan
Anna Do
Laura Ghezzi
Victoria Gitman
Thomas Johnstone
Delaram Kahrobaei
Laina Karthikeyan
Tony Nicolas
Giovanni Ossola
Eric Rodriguez
Alex Rozenblyum
Annette Saddik
Liana Tsenova
Tsombe Walker

With new faculty hires in Fall 2008 and in Fall 2009, activities on research and development have again increased this year in our department. Professor Hans Schoutens was awarded the **Scholar on Campus**. Ten faculty members contributed a poster at the **Seventh Annual Poster Session** for Faculty and Students: Professors Marianna Bonanome, Andrew Douglas, Samar ElHitti, Laura Ghezzi, Victoria Gitman (in collaboration with a student), Delaram Kahrobaei, Gjergj Klimi (in collaboration with two students), Thomas Tradler, Huseyin Yuce, and Lin Zhou.

Professor Delaram Kahrobaei chaired the organizing committee of the Fourth Annual City Tech Research Conference. Professors Zhao Chen, Gjergj Klimi and Azita Mayeli presented at the conference and many faculty members participated and helped in the organization. This year, once more, the joint Math/Physics Colloquium was well attended. We had two excellent outside speakers, Prof. Lars Christensen (Texas Tech University) and Prof. Steven J. Brams (NYU), as well as two in-house talks by Prof. Jonas Reitz (Mathematics) and Prof. Lucas Bernard (Business). Professors Delaram Kahrobaei and Thomas Tradler continued the successful Mathematics Seminar Series. Professors Leo Chosid, Samar ElHitti and Jonathan Natov gave a talk, and many others faculty members participated.

Professor Delaram Kahrobaei founded the **Center for Logic, Algebra, and Computation (C-LAC)**. Details can be found at <http://c-lac.org/>. Together with Professors Andrew Douglas and Victoria Gitman they started the C-LAC Seminar Series. They had a very prestigious speaker, Professor Rosenberger (Technische Universitat Dortmund, Germany), hosted by Professor Kahrobaei, and two math faculty talks by Professors Laura Ghezzi and Victoria Gitman. Many faculty members and students attended the seminars.

Mathematics faculty have also been very active in (co)-organizing **seminars at the CUNY Graduate Center**: Applied Mathematics (Prof. Yuce), Commutative Algebra and Algebraic Geometry (Profs. ElHitti, Ghezzi, Schoutens), CUNY Logic Workshop (Prof. Schoutens), CUNY Representation Theory Seminar (Prof. Douglas), Mathematical Aspects of Cryptography Student Seminar (Prof. Kahrobaei), Model Theory (Prof. Schoutens), New York Algebra Colloquium (Profs. Douglas and Kahrobaei). Several other faculty members gave talks and participated in the seminars.

Once more, many math department members supervised student research, supported by programs including the Emerging Scholars, the Honors Scholars, the City Tech Foundation and NSF-LSAMP.

¹ Mathematics Department Professional Development and Research Committee.

Two students, mentored by Professors Delaram Kahrobaei and Satyanand Singh respectively, presented at the second Annual City Tech Student Research Conference. Several faculty members served in the organizing committee of the conference, chaired by Professor Delaram Kahrobaei.

Individual Faculty Research Activity

Marianna Bonanome was awarded a PSC-CUNY Research Grant for 2009-2010. She presented the following talks:

- “The Existence of Uncountably Many 3-Solvable Groups”. New York State Mathematics Association of Two-Year Colleges Region IV Conference, BMCC, CUNY, November 1, 2009.
- “The Existence of Uncountably Many 3-Solvable Groups”. New York Algebra Colloquium, CUNY Graduate Center, March 26, 2010.
- “Shadows of Higher Dimensions”. City Tech Math Club, City Tech, CUNY, March 11, 2010.
- “An Introduction to Quantum Algorithms”. NYCCT Math/Physics Colloquium, April 23, 2009.
- “Whitehead’s Algorithm”. Annual City Tech Research Conference, March 27, 2009.

Professor Bonanome attended the 2009 Zassenhaus Group Theory Conference held at Franklin and Marshall College, Lancaster, PA, May 29-31, 2009 where her paper “IA-Automorphisms of Finitely Generated Centrally Stable Groups” with Dr. Dean and Dr. Zyman was presented by Dr. Zyman.

Zhao Chen published the paper

- “Mapping Computations”, Journal of Supercomputing, 48, no.2 (2009), 152-162.

He presented the talk

- “Matrices Computations” at the City Tech Faculty Research Conference, March 12th, 2010.

He also participated in the New York State two-year college mathematics Region IV conference at Borough of Manhattan Community College (November 1, 2009).

Andrew Douglas was awarded PSC-CUNY Research Grants for 2009-2010 and 2010-2011. He was also awarded a Grant for support to attend the Representation Theory and Mathematical Physics Conference in Honor of Gregg Zuckerman’s 60th, Yale University, October 24-27, 2010 (\$1000). Moreover, Professor Douglas was a recipient of a Faculty Fellowship Publication Program in Spring 2009 (3 credits release time).

Professor Douglas published the following papers:

- “Some nonunitary, indecomposable representations of the Euclidean algebra $e(3)$ ”, Journal of Physics A: Mathematical and Theoretical, 43 (2010), to appear (with H. de Guise).
- “Some residually solvable one relator groups”, Bulletin of the Irish Mathematical Society, 65 (2010), 23-31 (with D. Kahrobaei and K. Bencsath).

Professor Douglas presented the following talks:

- “Nonassociative algebra structure on $sl(2, \mathbb{C})$ -modules”. Regional meeting of the American Mathematical Society, New Jersey Institute of Technology, Newark, NJ, May 23, 2010.

- “Representations of the Poincare algebra $p(3,1)$ ”. New York Algebra Colloquium, CUNY Graduate Center, New York, New York, April 16, 2010.
- “Generalized Lie-Yamaguti Structures on $sl(3,C)$ -Modules $V(n,n)$ ”. Second Mile High Conference on Nonassociative Mathematics, University of Denver, Colorado, June 23, 2009.
- “The Teacher as Learner: Community, Care and Support” (with Professors Estela Rojas and Charles Hirsch). National Learning Communities Conference, Marietta, GA, November 12, 2009.
- “Generalized Lie-Yamaguti Structures on $sl(3,C)$ -Modules $V(n,n)$ ”. Third Annual Meeting of the Prairie Network for Research in Mathematical Sciences, University of Saskatchewan, Saskatoon, Canada, April 30, 2009.
- “Generalized Lie-Yamaguti Structures on $sl(3,C)$ -modules”. Bronx Community College Mathematics Seminar, BCC CUNY, March 31, 2009.

Professor Douglas has been a Committee Member of the Mathematics Panel for the Research Foundation of the City University of New York since 2008. He was a visiting researcher at the Department of Mathematics, University of Toronto, for the month of June 2010.

Professor Douglas organized a Special Session in the National Meeting of the American Mathematical Society titled “Nonassociative Algebras and Representation Theory” (January 13-16, 2010, San Francisco, California). He co-organized a Special Session in the Eastern Regional Meeting of the American Mathematical Society titled “Lie Algebras and Representation Theory” (May 22-23, 2010, New Jersey Institute of Technology, Newark, NJ).

Samar ElHitti was awarded PSC-CUNY Research Grants for 2009-2010 and 2010-2011.

Professor ElHitti published the paper

- “Formal prime ideals of infinite value and their algebraic resolution” to appear in *Annales de la Faculté des Sciences de Toulouse*, volume 19, number 2 (2010).

Professor ElHitti presented the following talks:

- “Formal prime ideals of infinite value and their algebraic resolution”. SING 2010, Resolution of singularities problems, in honor of Professor Vincent Cossart on his 60th birthday. Tordesillas (Valladolid), Spain. March 19, 2010.
- “Formal prime ideals of infinite value and their algebraic resolution”. AMS Regional meeting, Pennsylvania State University, University Park, PA, October 24, 2009.
- “Resolution of Singularities, Local Uniformization and Prime ideals of infinite value”. Mathematics Series Seminar, NYC College of Technology, CUNY, September 17, 2009.
- “The jumping of the rank of a valuation and Prime Ideals of infinite value”. Algebra Seminar, University of Missouri, Columbia, MO, April 13, 2009.
- “Resolution of singularities, local uniformization and prime ideals of infinite value” Colloquium talk, Case Western Reserve University, Cleveland, OH, April 10, 2009.
- “The jumping of the rank of a valuation and Prime Ideals of infinite value”. City Tech Third Annual Research Conference, NYC College of Technology, CUNY, March 27, 2009.
- “Algebraization of formal ideals”. The Eighth Colloquium Fest, Graduate Center - CUNY, New York, NY, March 6-7, 2009.

Laura Ghezzi was awarded PSC-CUNY Research Grants for 2008-2009, 2009-2010 and 2010-2011.

Professor Ghezzi published the papers:

- “The signature of the Chern coefficients of local rings” (with J. Hong and W.V. Vasconcelos), *Math. Research Letters* 16 (2009), 279-289;
- “A generalization of the Strong Castelnuovo Lemma”, *J. Algebra* 323 (2010), 1018-1035;
- “Cohen-Macaulayness versus the vanishing of the first Hilbert coefficient of parameter ideals” (with S. Goto, J. Hong, K. Ozeki, T.T. Phuong and W.V. Vasconcelos), *J. London Math. Society* 81 (2010), 679-695.

Professor Ghezzi presented the following talks:

- “The first Hilbert coefficient of parameter ideals”, at the School and Workshop on Local Rings and Local Study of Algebraic Varieties (honoring Professor G. Valla), at the ICTP (International Centre for Theoretical Physics), Trieste, Italy (June 7-11, 2010);
- “Cohen-Macaulayness and the vanishing of Hilbert coefficients” at the Sectional Meeting of the American Mathematical Society at Pennsylvania State University (October 24-25, 2009);
- “Hilbert functions in local rings” and “A proof of the conjecture on the vanishing of the first Hilbert coefficient of parameter ideals” at the Commutative Algebra and Algebraic Geometry Seminar at the CUNY Graduate Center (September 11 and October 16, 2009, respectively);
- “Minimal free resolutions in Commutative Algebra, and applications to Computational Algebra” at the C-LAC (Center for Logic, Algebra and Computation), New York City College of Technology (November 3, 2009).

Victoria Gitman was awarded a PSC-CUNY Research Grant 2009-2010.

Professor Gitman published the following papers:

- “Proper and piecewise proper families of reals”, *Mathematical Logic Quarterly* 55, no. 5, 542--550, 2009.
- “A natural model of the multiverse axioms” (with Joel David Hamkins), to appear in *Notre Dame Journal of Formal Logic* 51, 2010.
- “Ramsey-like cardinals”, to appear in *Journal of Symbolic Logic*, 2010.
- “Ramsey-like cardinals II” (with Philip Welch), to appear in *Journal of Symbolic Logic*, 2010.

Professor Gitman presented the following talks:

- “Ramsey-like cardinals”. ESI workshop on large cardinals and descriptive set theory, the Erwin Schrodinger International Institute for Mathematical Physics, Vienna, Austria (June 19, 2009).
- “Making strong cardinals indestructible by $\leq \kappa$ -weakly closed Prikry forcing”. Set Theory Seminar, Graduate Center of CUNY, New York, September 11, 2009.
- “Alpha-iterable cardinals”. CUNY Logic Workshop, Graduate Center of CUNY, New York, December 4, 2009.
- “Godel's Proof”. Mathematics Research Seminar, US Military Academy, West Point, January 20, 2010.
- “A natural model of the multiverse axioms”. Logic Seminar, Massachusetts Institute of Technology, Boston, April 8, 2010.

Thomas Johnstone was awarded a nine-month post-doctoral research position, grant P20835-N13 (\$40,000) from the Austrian Science Fund. He was also awarded an Exchange Visit Grant through the INFTY networking programme (\$8,000) from the European Science Foundation, and a City University of New York Scholar Incentive Award (\$15,000). These awards were in support of Professor Johnstone's leave from City Tech to visit the Kurt Goedel Research Center in Vienna, Austria, from October 2009 until July 2010. In addition, he was awarded a PSC-CUNY Research grant for 2009-2010, a City Tech travel grant for overseas travel in June 2009, and an Austrian Science Fund travel grant to give a presentation in Vienna in June 2009.

Professor Johnstone published the following papers:

- “The Proper and Semi-Proper forcing axioms for forcing notions that preserve \aleph_2 or \aleph_3 ”, with Joel D. Hamkins. Proceedings of the American Mathematical Society 137(5): 1823-1833, May 2009.
- “Indestructible Strong Unfoldability”, with Joel D. Hamkins, Notre Dame Journal of Formal Logic, 51(3): 291-321, September 2010.

Professor Johnston presented the following talks:

- “Workshop on large cardinals and descriptive set theory”, Erwin Schroedinger Institut, Vienna, Austria, June 2009.
- “Young Set Theory workshop”, Raach, Austria, February 2010.
- “The Resurrection Axioms”, Logic workshop, The Graduate Center, CUNY, New York, September 2009.
- “The Resurrection Axioms”, Forschungsseminar, Kurt Goedel Research Center, Vienna, Austria, October 2009.
- “The Resurrection Axioms and The Uplifting Cardinal”, Barcelona set theory seminar, University of Barcelona, Spain, June 2010.

Delaram Kahrobaei was awarded an NSF-ADVANCE grant as a co-PI (\$195,000, 2008-2010), with Provost August (PI), Dean Brown (co-PI) and Victoria Gitman (co-PI). She was also awarded a Faculty Fellowship Publication Award from CUNY in Spring 2009 and PSC-CUNY Research Grants for 2008-2009, 2009-2010 and 2010-2011. She also received Certificates by Chancellor Goldstein of CUNY for receiving external grants, in 2008 and 2009.

Professor Kahrobaei published the papers:

- “Decision and Search in non-abelian Cramer Shoup Cryptosystem” (with M. Anshel), Journal of Groups, Complexity, Cryptology, Vol.1, Heldermann Verlag, Germany, 217-225 (2009).
- “On Residual Solvability of Generalized Free Products of Finitely Generated Nilpotent Groups”, Communications in Algebra, 2010, to appear.
- “Applications of Group Theory in Cryptography” (with M. Anshel), International Journal of Pure and Applied Mathematics, Vol. 58, No 1, 21-23 (2010).
- “Some Residually Solvable One-relator Groups” (with K. Bencsath and A. Douglas), Bulletin of the Irish Mathematical Society, United Kingdom, 65, 23-31 (2010).
- “A new Public Key Using Semi-Direct Products” (with M. Habeeb and V. Shpilrain), Refereed Conference Proceedings of the Second International Conference on Symbolic Computation and Cryptography, Royal Holloway University of London, 137-142 (2010).

- “On residual solvability of generalized free products of solvable groups” (with S. Majewicz), to appear in Journal of Discrete Mathematics and Theoretical Computer Science (2010).
- “Aspects of Non-Abelian Group Based Cryptography: A Survey and Open Problems” (with B. Fine, M. Habeeb and G. Rosenberger), to appear in JP Journal of Algebra, Number Theory and Applications (2010).

Professor Kahrobaei is the Chief Editor of the Conference Proceedings of Student Research Conference at City Tech, Linus Publication (2009), and she respectively published and edited the books

- “Group products and residual solvability” (with K. Bencsath), Lambert academic publishing, Germany, to appear 2010.
- “Groups, Computations, Applications”, Eds. D. Kahrobaei, V. Shpilrain, will appear in Groups, Complexity, Cryptology, de GRUYTER Publication, Germany.

Professor Kahrobaei presented the following talks:

- “Residual Solvability and Applications in Geometry”, International conference in Approaches to Group Theory, Cornell University, October 9-11, 2010.
- “A new public key based on the semidirect product and holomorph of a free metabelian group”, International workshop on Group Based Cryptography, The Centre de Recherches Mathématiques (CRM). Montreal, Canada, September 2nd, 2010.
- “Applications of Group Theory in Computer Science”, Manhattan Group Theory Day, CUNY Graduate Center, December 4th 2009.
- “A new Gateway for Group-based Cryptography”, National American Mathematical Society-MAA Joint Mathematics Meetings in Washington DC, Special session on Generic Case Complexity and Algebraic Cryptography, January 7, 2009.
- “Growth Rate of an Endomorphism of a Group”, International Conference on Geometric and Combinatorial Methods in Group Theory and Semi-Group Theory (John Meakin 60th Birthday) (Nebraska) (May 2009).
- “Decision and Search in non-abelian Cramer Shoup Cryptosystem”, Geometric and Asymptotic Group Theory with Applications Conference, Stevens Institute of Technology, Hoboken, NJ, March 12 2009.
- “Applications of Group Theory in Modern Cryptography”, Zassenhaus Group Theory Conference, Pennsylvania, May 29-31, 2009.
- “Residual Solvability of One-relator groups”, American Mathematical Society-MAA Joint Mathematics Meetings in Washington DC, Contributed Talks in Group Theory special session, January 8 2009.
- “Growth Rate of an Endomorphism of a Group”, Group St Andrews International Conference, Bath University, United Kingdom, August 2, 2009.
- “Applications of Non-Abelian Group Theory in Cryptography”, Université du Québec à Montréal Colloquium, Canada (February 13 2009).
- “Residual Solubility and True Prosoluble Completion of a Group”, McGill University, Geometric Group Theory Seminar, Canada (February 11 2009).
- “Aspects of Nonabelian Group Based Cryptography”, University of Texas (Austin), Algebra, Number Theory, Combinatorics Seminar (March 25 2010).
- Professor Kahrobaei also gave talks at the Third Annual Meeting of the Prairie Network for Research in Mathematical Sciences, University of Saskatchewan, Canada (April 2009), at the

Combinatorics, Groups, Algorithms, and Complexity Conference in honor of Babai's 60th birthday (Ohio State University, Columbus, Ohio, March 20, 2010) and at the Second International Conference on Symbolic Computation and Cryptography, Royal Holloway, University of London, UK June 23-25, 2010.

Professor Kahrobaei was a visiting researcher of Professor Holt at Warwick University (United Kingdom), July 18-24 2010. Professor Kahrobaei organized the Special Session "Groups, Computations, Applications" at the American Mathematical Society Meeting, 2010 Eastern Spring Special Session, and she co-organized the Manhattan Group Theory Day, at the CUNY Graduate Center (Dec. 4th 2009). She is co-organizing the Manhattan Group Theory Day II, at the CUNY Graduate Center (Dec. 3rd 2009).

Neil Katz published the article

- "A modulus of curves from distance," *Annales Academiae Scientiarum Fennicae Mathematica* 35 (2010) 3-21.

Gjergj Klimi published the following books:

- *Exterior Ballistics of Small Arms*, published by Xlibris, March 2009;
- *Exterior Ballistics: A New Approach*, published by Xlibris, April 2010.

He presented the following talks:

- "Energy of Earthquakes and Underground Nuclear Tests" (co-author with 2 students). City Tech Math Club, October 15th, 2009.
- "Projectile Trajectory- Streamline and Snell's Law Model (Wonders of Snell's Law)". City Tech Faculty Research Conference, March 12th, 2010.

Professor Klimi also presented his two books "Exterior Ballistics with Applications" (Xlibris, 2008) and "Exterior Ballistics of Small Arms - Companion to Exterior Ballistics with Applications" (Xlibris, 2009) at the Royal Military Academy of Belgium, the Department of Systems of Weapons and Ballistics (ABAL) on April 10, 2009.

Boyan Kostadinov was among the team awarded a SENCER NSF grant with Dean Brown (PI) in Fall 2010. He is developing "real-world" projects with real-world data for MAT 1372 Probability and Statistics with Excel.

Professor Kostadinov presented the following talks:

- "Invitation to Financial Mathematics". City Tech Actuary Club, January 2010.
- "Why is the minimum payment on a credit card so low?" Math Club, New York City College of Technology, April 2010.
- "What is the connection between the cash option and the annuity payments in the Mega Million Jackpot?" Math Club, New York City College of Technology, April 2010.
- "Introduction to discrete Time Option pricing". NYCCT Math seminar series, New York City College of Technology, Fall 2010.

Michael Munn spent the academic year 2009-2010 at the University of Warwick (UK) as a postdoctoral researcher, supported by the NSF. He was awarded PSC-CUNY Research Grants for 2009-2010 and 2010-2011.

He published the following papers:

- “Volume growth and the topology of Gromov-Hausdorff limits”, *Differential Geometry and its Applications*, 28, (2010) no. 5, 532–542.
- “Volume growth and the topology of open manifolds with nonnegative Ricci curvature”, *Journal of Geometric Analysis*, 20 (2010) no. 3, 723–750.

He presented the following talks:

- “Volume Growth and the Topology of Manifolds with Nonnegative Ricci Curvature”, Kings College Analysis & Geometry Seminar, London, UK, June 1, 2010.
- “The Isoperimetric Inequality for Minimal Submanifolds”, University of Warwick Geometric Analysis Seminar, UK, February 2010.
- “Volume growth and the topology of manifolds with nonnegative Ricci curvature”. Cornell Analysis Seminar, Cornell University, April 2009.
- “Volume growth in manifolds of nonnegative Ricci curvature”. AMS Sectional Meeting, University of Illinois, Urbana-Champaign, March 2009.
- “Volume growth and the topology of manifolds with nonnegative Ricci curvature”. Mathematics Seminar Series, NYC College of Technology, April 2009.
- “Optimal Transport and Ricci Curvature I, II”. Geometry Reading Seminar, Graduate Center, CUNY, Spring 2009.

Alexander Rozenblyum presented the following talks:

- “Representation of Quantum Group $U_q(\mathfrak{so}(n))$ and q -Orthogonal Polynomials”. Joint Meeting of the AMS and MAA, San Francisco, CA, January 13-16, 2010.
- “Overlap coefficients in representations of the q -deformed algebra $U_q(\mathfrak{so}(4))$ ”. AMS Sectional Meeting, New Jersey Institute of Technology, Newark, NJ, May 22-23, 2010.

Hans Schoutens was awarded the Scholar-on-campus 2010 award and a PSC-CUNY Research Grant for 2009-2010. He was a visiting Professor at Ohio State University (Columbus, OH) during his sabbatical leave 2009-2010, and a Visiting Professor at the Catholic University of Leuven (Belgium) during Summer 2010.

He published the paper

- “Characteristic p methods in characteristic zero via ultraproducts”, *Recent Developments in Commutative Algebra*, Editors: M. Fontana, S. Kabbaj, B. Olberding and I. Swanson, Springer (2010).

He also published the book

- “The use of ultraproducts in commutative algebra”, *Lecture Notes of Mathematics*, vol. 1999, 204p., Springer (2010).

Professor Schoutens presented the following talks:

- Lecture series (4 talks) on “Chromatic products in algebra and geometry” at the Catholic University of Leuven (Belgium, June 2010).
- “Stone representation theorems for Boolean, potent, and periodic rings”. XXXth Ohio State-Denison Mathematics Conference (Columbus, OH, May 2010).
- “A mathematician's Divina Commedia”. Citytech Scholar-on-Campus Lecture, NY, April 2010.
- “Limits of valuations and singular valuations” at the OU-OSU Ring Theory Seminar (OSU, OH 2010).
- “Uniform bounds for Betti numbers of CM modules”. Southeast Commutative Algebra Meeting, Orlando, FL, Jan 2010.
- “Schemic Grothendieck rings, arc integrals, and motivic rationality”. MIT-Harvard joint Algebraic Geometry Seminar, Cambridge, MA, Nov 2009.
- “Schemic Grothendieck rings, arc integrals, and motivic rationality”. OSU Algebraic Geometry Seminar, Columbus, OH, Nov 2009.
- “Schemic Grothendieck rings, arc integrals, and motivic rationality”. UMich Commutative Algebra Seminar, Ann Arbor, MI, Oct 2009.
- “Schemic Grothendieck rings, arc integrals, and motivic rationality”. Algebra Seminar, Leuven, Belgium, Oct 2009.
- “Tutorial lectures on schemic Grothendieck rings and motivic Igusa zeta series”. OSU Logic Seminar, Columbus, OH, Sep 2009.

Thomas Tradler published the following papers:

- “A Chen model for mapping spaces and the surface product” (with G. Ginot and M. Zeinalian), *Annales Scientifiques de l'École Normale Supérieure*, 4e série, t. 43, p. 811-881, 2010.
- “The string bracket as a Poisson bracket” (with H. Abbaspour and M. Zeinalian), *Journal of Noncommutative Geometry*, vol. 4, issue 3, p. 331-347, 2010.
- “Algebras over Cobar(coFrob)” (with G. C. Drummond-Cole and J. Terilla), *Journal of Homotopy and Related Structures*, vol. 5(1), p. 15-36, 2010.
- “Quantum backgrounds and QFT” with (J.-S. Park and John Terilla), *International Mathematics Research Notices*, vol. 2009, no. 5, p. 765-801, 2009.

Professor Tradler was an editor for the book

- “Deformation Spaces” (Editors: H. Abbaspour, M. Marcolli, and Thomas Tradler), *Aspects of Mathematics* 40, Vieweg and Teubner, 2010.

Huseyin Yuce was awarded an NSF-CCLI grant as a primary investigator (\$199,559) for the project “The Brooklyn Waterfront 2050”. He was also awarded PSC-CUNY Research Grants for 2009-2010 and 2010-2011.

He published the following papers:

- “A Boundary Perturbation Method for Circularly Periodic Plates with a Core” (with C.Y. Wang), *Journal of Sound and Vibration* 328 (2009) 345-368.
- “Perturbation Methods for Moderately Elliptical Plates with a Core” (with C.Y. Wang), *Acta Mechanica* 298 (2010), to appear.

Professor Yuce gave the following presentations:

- “Perturbation Methods for Biharmonic Eigenvalue Problem”, Bronx Community College Colloquium, October 27, 2009.
- “Perturbation Methods for Vibration of Moderately Elliptical Plates”, Applied Mathematics Seminar ,CUNY Graduate Center, September 25, 2009.
- “Mathematical Modeling: From reading to writing” Synergy in STEM Conference at NYCCT, October 30, 2009.

Professor Yuce presented two posters titled “Rare Event Bias in Retrospective Analysis of Outcomes Measures” and “Modeling Transformed Health Care Costs with Unknown Heteroskedasticity” at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Conference in Atlanta, GA, May 15-19, 2010.

Lin Zhou was awarded a PSC-CUNY Research Grant for 2010-2011. Professor Zhou published the following papers:

- “A Simple Derivation of Microstrip Transmission Line Equations” (with A. Kriegsmann), SIAM Journal on Applied Mathematics, 70(1), 353-367, 2009.
- “Probing Shear-banding Transitions of the VCM Model for Entangled Wormlike Micellar Solutions Using Large Amplitude Oscillatory Shear (LAOS) Deformations” (with L. P. Cook and G. H. McKinley), Journal of Non-Newtonian Fluid Mechanics, 165, 1462-1472, 2010.

Professor Zhou gave the following presentations:

- “Steady and Transient Flows of Entangled Fluids”. 1052nd AMS meeting, Penn State, PA, October 24-25 2009.
- “Unusual Fluids: Properties, Uses and Mathematical Models”. Math Colloquium, William Paterson University, NJ, March 31, 2010.
- “Unusual Fluids: Properties, Uses and Mathematical Models”, Women in Science and Engineering (WISE), William Paterson University, NJ, September 29, 2010.
- “Large Amplitude Oscillatory Shear and elastic wave propagation in the VCM model for wormlike micellar solutions”. Society of Rheology 82nd annual meeting, Santa Fe, NM, October 25-28, 2010.