Dr. Alexander Karp is a full professor in the Mathematics Education program, in the Mathematics, Science, and Technology Department. Although traveling a lot, throughout his life he has lived for a long time in two places only: in St. Petersburg, Russia, where he was born and raised, and in New York.

As a child he was interested in history, mathematics, and art. In the eighth grade he received an award at the City Mathematical Olympiad and, as was customary in Russia, was invited to attend the mathematical "circle" (club). He was identified as exceptional in mathematics as a child, and as a result he was invited to compete in Mathematical Olympiad and mathematical clubs at school.

Continued on page 2-3
Since that time he has been involved in more advanced studies of mathematics. Due to the anti-Semitic Soviet policy, Dr. Karp could not, however, become a student of the Mathematics Department of St. Petersburg University (which officially aimed to prepare research mathematicians) and entered the Mathematics Department of the Herzen Pedagogical University responsible for the preparation of mathematics educators. However, it proved to be a great choice. First, because the Herzen Pedagogical University was at that time a very good research and educational center, and, secondly, because it was there that Dr. Karp became interested in mathematics education.

Dr. Karp started conducting his research in mathematics and mathematics education while still a student of Herzen University and continued doing so as a secondary school teacher. He spent 18 years as a classroom teacher, teaching advanced mathematics (many of his former students became professors of mathematics in the USA and other countries). While working in this school he returned to Herzen University to receive yet another degree in history and education and a Ph.D. in mathematics education.

He became involved in professional development of mathematics educators as well as textbook writing. For ten years he served as a chair of the St. Petersburg Examination Board in Mathematics and as a Lecturer in the St. Petersburg Academy of Postgraduate studies.

In 1996 he met Professor Vogeli in Russia and that started their collaboration. After visiting TC several times, Dr. Karp applied for a position in the Mathematics Education program and has been a professor at TC ever since. Dr. Karp teaches courses in pure mathematics, in mathematics education methods, and research courses; his favorite courses are MSTM 5023 Problem Solving and MSTM 4034 Exploring Secondary School Mathematics. As he says:

“It’s very important to show to prospective teachers that you can do interesting stuff with school mathematics, that school mathematics is a very rich field where you can ask very interesting and challenging questions and do a lot of real mathematical work.”

He also enjoys teaching his research seminar and engaging prospective researchers in the discussion of the paradigms and methods of studies in mathematics education.

His own areas of research include the history of mathematics education, problem solving, and gifted education and mathematics teacher education. He is co-editor (with Gert Schubring) of the International Journal for the History of Mathematics Education. Among his major recent accomplishments is the two-volume set on Russian Mathematics Education, co-edited with Dr. Vogeli. Currently he is involved in an even more ambitious project. He is co-editing (with Gert Schubring) the Handbook on the History of Mathematics Education. This book aims to provide a state-of-the-art description of the history of teaching and learning mathematics all over the world, as well as a discussion of the research methodology of the field.
Dr. Alexander Karp – Continued

Dr. Karp says that the most stimulating part of his research work is looking for new sources and information in the education and art archives. He also enjoys playing with his son and attending museums with his family.

---

CCTE Alumni Spotlight: Dr. Tiffany DeJaynes, Communication and Education, Ed. D. 2010

Dr. Tiffany DeJaynes, Communication and Education, 2010, focused her doctoral research on adolescent literacies through the lens of multimodal pedagogies and digital technologies. Before attending Teachers College, Dr. DeJaynes, a native of Kansas City, MO, earned an M.A. in English in Language, Literature, and Composition from the University of Kansas.

Currently, she teaches qualitative research at Millennium Brooklyn High School, a public school focused on project-based inquiry. Dr. DeJaynes also teaches an action research course for literacy educators in the Transformative Literacy Program at CUNY’s City College of New York.

Dr. Tiffany DeJaynes chose the doctoral program at TC because it offered a significant research community and faculty with a variety of interests, as well as the opportunity for interdisciplinary study. She says, “I was able to meet my research needs because there is so much activity and many interesting things going on.” TC offered her a network of inspiring colleagues doing innovative education and literacy work around the world.

As a student, she ran the Graduate Writing Center at Teachers College for three years. Additionally, she consulted with The Center for Technology and School Change and Secondary Literacy Institute, mentoring new and experienced teachers across content areas.

“Two people who for me have been incredible advocates and mentors for me throughout my time at TC and beyond that time are Professor Lalitha Vasudevan and Professor Ellen Meier.” With Professor Vasudevan, her dissertation sponsor, she remains in conversation about youth and learning in co-authored and co-edited publications. With Professor Meier, she continues to discuss pedagogical and leadership work that needs to be happening in public schools and advocates for public school change.

Her dissertation Knowing Ourselves and Making Ourselves Known: Exploring Multimodal Literacies and Learning with Adolescents, a practitioner inquiry study with adolescents, examined writing and storytelling through a multimodal lens. In her work, she engaged her students in music projects blogging, social media, photography and filmmaking, considering how to build more multimodal pedagogies into everyday classroom work.
Dr. Tiffany DeJaynes – Continued

She has taught two graduate courses at TC – Culture, Media, and Education and Social Aspects of Information and Communications Technologies (ICTs).

Her research interests include adolescent literacies with a focus on digital technologies and multimodal pedagogies. She says, “I am particularly concerned with how we bring new ways of learning into the classroom, through arts and creative media making, like photography, film making, and social media.”

She is also interested in arts and justice. Dr. DeJaynes recently completed a book project, *Arts, Media, and Justice: Multimodal Explorations with Youth*, co-edited with Dr. Vasudevan, published by Peter Lang, Spring 2013. The collection explores multiple educational studies with court-involved youth. Chapters examine multimodal pedagogies and meaning-making practices in spaces that include theater, filmmaking, and photography.

From doing qualitative work through a digital lens with young people, Dr. DeJaynes has begun to think about the changing nature of ethnographic research, specifically, how ethnographic methodologies can be developed and used to study literacies across spaces. This thread of inquiry is explored in a recent chapter with Dr. Vasudevan entitled *Researching Adolescents Literacies Multimodally*, published in the *Sage Handbook of Digital Dissertations and Theses*. It examines the evolving landscape of qualitative inquiry by reflecting on each of their digital dissertation studies. In her current research course with high school students, she is developing participatory frameworks for doing ethnographic work with adolescents.

Dr. DeJaynes regularly presents in the *American Educational Research Association* (AERA) special interest group on Writing and Literacies. This spring she will be presenting *Composing in Mediated Spaces* as part of a panel on multimodal play.

In addition, she researches with *Girls Write Now*, a writing and mentoring program for young women, on narrative gaming and digital publishing. She also continues organizational support with Caras Alegres, an educational non-profit she worked with while living Guatemala.

While Dr. DeJaynes maintains an active research practice and professional career, she finds time to engage in activities of interest such as game design and web design. Her close friends and family would describe her as having a creative spirit and an endless energy for new ideas.
Mathematics Education Current Student Spotlight:
Heather Gould, Mathematics Education, Ph. D.

Heather Gould is a fourth-year Ph. D. student in the Mathematics Education program. She grew up in Stone Ridge, a small town in Ulster County, New York. She attended the University at Albany – SUNY and earned a bachelor’s degree with a double major in mathematics and anthropology. She also earned two master’s degrees from SUNY Albany, one in mathematics and the other in curriculum development and instructional technology.

Soon after, she started working on a research project entitled “National Study of Writing Instruction” at SUNY Albany, where she was a research assistant and mathematics adviser. She tutored at SUNY Ulster in their mathematics lab and taught college courses at SUNY Ulster, Dutchess Community College, and Hudson Valley Community College.

She then continued her academic career by attending TC. The faculty in the mathematics education program at TC have a range of expertise and Heather knew that, wherever her studies led her, she would have a faculty member to guide her. This and the location of TC in New York City, where she has always wanted to live, were the major contributing factors to Heather attending TC.

Heather has been offered various opportunities to work with faculty in the mathematics program at TC. Professor Vogeli emphasizes student publications, and Heather recalls, “every time he offered me an opportunity to publish or gave me an idea to publish I tried to do so.” In addition to support with publication endeavors, she has been able to work with faculty to continue to do research in mathematics education.

Heather is beginning her fourth year of doctoral studies in mathematics education. She has written the first few chapters of her dissertation and has begun to collect data. She states, “my first couple of chapters are decent works, the literature review is never done … I am currently collecting data.”

Heather began with the intent of studying mathematics language acquisition but her knowledge of the current needs in mathematics education research has grown and with it, her interests have evolved. She is currently studying how teachers understand mathematical modeling, particularly with reference to the Common Core State Standards for Mathematics.

“With the introduction of Common Core State Standards for Mathematics, new emphasis has been placed on mathematical modeling. Unfortunately very few teachers seem to have a complete grasp of what mathematical modeling is …. That’s not a knock on teachers. That’s just the state of what has been taught before and what has not been taught,” she says.

Her academic interests outside of those she researches are mathematics manipulatives, mathematical language acquisition, and ethnomathematics (the study of how different cultures perceive mathematics).
Heather Gould – Continued

Heather was the chair of the editorial board for the Teachers College Mathematical Modeling Handbook, which is a Consortium for Mathematics and Its Applications (COMAP) publication. The handbook was written and completed within the Mathematics Education program as a response to the release of the Common Core State Standards for Mathematics and its call for mathematical modeling. This was the beginning of her interest in mathematical modeling. She believes this has been the largest project that she has been involved with at TC.

She was given the opportunity to be a teaching assistant for both Professor Pollak and Professor Garrity. While assisting Dr. Garrity, she worked with pre-service and in-service elementary teachers, addressing the development of their mathematical content knowledge. Heather was able to learn more about teaching elementary mathematics, how elementary teachers understand mathematics, their difficulties with the subject, and what can be done to address those difficulties.

Heather is currently co-teaching an experimental mathematical modeling workshop with Dr. Pollak. The focus of the course is twofold: for the participants, it is to learn about mathematical modeling, with a particular emphasis on the process of modeling; for her and Dr. Pollak, the purpose is to see how teachers react to mathematical modeling and how teachers feel after completing mathematical modeling activities, with particular emphasis on the activities found within the COMAP handbook. The general goal is for the participants to feel comfortable teaching mathematical modeling and to learn how to teach mathematical modeling better. “The great thing about teaching teachers is that they are always able to give you good criticism about what you can do better, so they in turn learn better,” Heather says.

Heather recently completed an exciting mathematics course with the Summer Institute for the Gifted After School program; teaching sports statistics to 6th – 8th grade gifted students. She developed an investigative, real-world curriculum in which students were given the opportunity to develop their very own statistic for the sport of their choice. Gifted students from all over the city chose to participate in the course. At the end of the course, the students presented their statistical work to their parents giving oral reports. The parents were very pleased by the work that their children had completed within this program and they showed their admiration at the end of the presentations with roaring applause. This was a heart-warming experience for Heather and she hopes to teach in this program again in the future.

Heather was the editor for the Spring-Summer 2012 issue of the Mathematics Education program journal, the Journal of Mathematics Education at Teachers College. Each issue has a special focus theme, with assessment being the theme of the Spring-Summer 2012 issue. In addition to that, she has played a small role as an adviser for the Teachers College Handbook on Mathematical Modeling Assessment that will be published by COMAP in the near future.
Heather Gould – Continued

Over the summer, Professor Walker offered Heather the opportunity to work as a curriculum developer on an interdisciplinary curriculum project entitled Understanding Fiscal Responsibility. The project includes lessons in mathematics, economics, civics, history, and government. She helped to develop and write some of the mathematics lessons intended to help students understand and look critically at the federal budget and national debt.

After completing her degree, Heather hopes to continue her research as a professor of mathematics or mathematics education and to provide professional development for teachers on mathematical modeling. She states, “I haven't taught college classes in a while and I miss it.”

She is an active member of National Council for Teachers of Mathematics (NCTM), attends conferences regularly, and has published in NCTM’s elementary education journal, Teaching Children Mathematics.

Aside from her busy academic schedule, Heather enjoys spending time with her fiancé and her two pets. She is also an avid fan of baseball and the New York Mets, in particular; she watches most games and attends them when she is able. Heather enjoys building with LEGO bricks and would eventually like to own an educational toy store.

Science Education Adjunct Faculty Spotlight: Dr. Arturo Hale

The Mathematics, Science, and Technology Department has welcomed Dr. Arturo Hale as a new adjunct science faculty member this year. He is currently teaching Concepts of Physics I & II. He also teaches conceptual physics at Bard High School Early College in Manhattan.

Dr. Hale was born and raised in Mexico City. He came to the United States as a Ph.D. student at the University of Minnesota, studying chemical engineering and material science.

His father was a self-trained chemist who would buy his children scientific magazines and toys that foster science skills and interest. As a child he was interested in chemistry and physics. He can recall cooking with his mother and this piqued his scientific curiosity. He wanted to know what would happen to the final product if he altered the recipe.

In high school, he recalls tutoring students in science and this sparked his interest in science education. This was one of his first experiences teaching and the students performed well as a result of his tutoring efforts.

He studied chemical engineering in college. After college his first job was as a high school science teacher in Mexico. His interest was split between education and research, at the end of his one-year position he began his doctorate program in chemical engineering.
Dr. Arturo Hale – Continued

Following his graduation from the University of Minnesota, he continued his research at Bell Laboratories, conducting applied research in fiber optics, microelectronics, material science, and photonics. During this time he further developed his interest in science education.

While conducting research, he was involved in various outreach programs sponsored by Bell Laboratories. The company wanted to increase diversity in the field; this allowed Dr. Hale the opportunity to engage in mentoring activities at the high school, undergraduate, and graduate levels. At the high school level, he mentored students and helped them with their science projects. Bell Laboratories offered summer undergraduate research internships and Dr. Hale often-hosted summer interns in his laboratory. Underrepresented minority graduate students were given fellowships and Dr. Hale was able to provide some of those students with research advisement.

Through these outreach programs his interest for teaching grew. In addition to his research position at Bell Laboratories, Dr. Hale began to investigate the possibility of becoming a teacher at the secondary level. He decided to earn a master’s degree in science education with certification at TC. During his student teaching assignment Dr. Hale was offered a position as a science teacher at a local high school and he transitioned to Bell Laboratories to high school science teacher in 2006.

Dr. Hale recounts a rewarding student experience at Teachers College, “I wasn’t sure how easily I would adapt after being so many years out of school. It was great! I was able to gain a wealth of knowledge from both the caliber of the teachers and my classmates. I really enjoyed it.” Prior to the course he took with Professor Anderson in biochemistry, biology was an experience of memorization for Professor Hale. Professor Anderson modeled inquiry-based and analytic study of the biological sciences, which was an eye-opening experience for Dr. Hale. He was captivated by the finesse and elegance of biochemical processes, as opposed to the “brute force” of industrial chemistry. In his Concepts of Physics I & II courses at TC, the discussions in his course allow for an even exchange of experience and practice in the field of science from Dr. Hale and his students, some of whom are current science teachers.

In his teaching practice, Dr. Hale strives to make physics relevant, interesting, and accessible to all. Physics has the stigma of being a very difficult subject, reserved only for the gifted. Dr. Hale wants to combat this stigma by demonstrating to his students that most concepts in physics are within anyone’s reach. Moreover, the concepts learned and critical thinking skills developed are important for fields as diverse as policy-making and art; science is no longer just for the scientist. Dr. Hale has had the opportunity to teach science electives at Bard High School Early-College, one of which was the Physics of Music. As part of the students’ study of the properties of strings, the students in the course constructed a guitar with one string. The students were so proud of their design that the students used their instruments to perform at the school’s café.
Dr. Arturo Hale – Continued

Dr. Hale manages a busy schedule teaching in two locations in New York City and fulfilling his family responsibilities. He has a young son and a girlfriend whom he spends as much time with as possible. Dr. Hale’s secondary teaching schedule is the same as his son’s school schedule; this allows him to spend valuable time with his son during school breaks and holidays. He describes his summer break as, “‘Papi camp,’ where I take my son swimming, we visit museums, and bike in the park.” Dr. Hale has a rich background in science and his energy, as a science educator is invaluable.

Mathematics, Science, and Technology Department
YouTube Channel

The Mathematics, Science, and Technology Department have recently launched a new YouTube Channel. The MST Department YouTube Channel gives faculty, students, and the public access to MST-produced videos of lectures, events, MST Times newsletter clips, and promotional content on the popular YouTube platform. The MST Department consists of the programs in three areas: Mathematics Education, Science Education, and Communications, Computing, and Technology in Education.

Deiana Jackson, the Assistant to the Director of Academic Administration for the Department of Mathematics, Science and Technology, created the MST Department YouTube Channel in Spring 2012.

This channel is managed by the Assistant to the Director of Academic Administration for the Department of Mathematics, Science and Technology at Teachers College, Columbia University.

Please Visit the New MST Department YouTube Channel:
http://www.youtube.com/user/teacherscollegemst
Accomplishments and Announcements

**Philip Boda**, Science Education Ed.M. candidate, Proposal accepted for presentation at the Association for Science Teacher Education 2013 International Conference. The presentation emphasizes the historical evolution of science-specific, inquiry-based pedagogy to support a novel, graphically-organized conception of inquiry learning for pre- and in-service science teachers. In collaboration, the graphic organizer is combined with a unit/lesson-planning template that describes differentiated components of the conceptual map for greater ease of adoption and implementation.

**Dr. Anthony Cocciolo**, CCTE Ed.D. 2009 graduate, was the recipient of the Library of Congress’ NDSA Innovation Award. The Annual Innovation Awards were established by the National Digital Stewardship Alliance (NDSA) to recognize and encourage innovation in the field of digital preservation stewardship. Prof. Cocciolo is recognized for his innovative approaches to teaching digital preservation practices at Pratt SILS, in particular his work partnering classes with archival institutions to work on the digitization and digital preservation of analog audio collections.

**Dr. Christopher Emdin**, Professor in Science Education wrote, “Geniuses Unite: The Intersection of Hip-Hop and Science.” The science educator interviews Neil deGrasse Tyson and the rap artist GZA about what kids need to get hooked on science. For more information visit: [http://www.tc.edu/news.htm?articleID=8607](http://www.tc.edu/news.htm?articleID=8607)

**Charles J. Greenberg**, CCTE Ed.M. 1995 graduate, Completed his second CIES/Fulbright Specialist library science training project in the Republic of Armenia, conducting training activities and guest lectures at the Republican Scientific Medical Library, the American Corners Library in Yerevan, and an interview on an Armenian daytime television show on health topics, viewable at [http://tinyurl.com/arm-tv-rsm] (translation provided for the questions he received and the responses he provided). He also created a workbook and teaching website, [www.hyelibrarians.net](http://www.hyelibrarians.net)

**Charles J. Greenberg**, CCTE Ed.M. 1995 graduate, attended the 15th International Symposium on Electronic Theses and Dissertations (ETD2012) in Lima, Peru, September 12-14, 2012 and presented a peer-reviewed paper on citation management tools for theses production. As a new member of the Board of Directors of the Networked Digital Library of Theses and Dissertations (NDLTD), he also attended the NDLTD Board Meeting on September 11th.

**Dr. Meghan Groome**, Science Education Ph.D. 2007 graduate, In collaboration with the State University of New York, the New York Academy of Sciences received a $2.95M grant from the National Science Foundation to scale the Academy’s Afterschool STEM Mentoring program across New York State. Dr. Groome is the principal investigator on the Academy’s grant and the founding director of the Academy’s K12 Science Education Initiative. In the first two years of the program, over 380 STEM Ph.D. students volunteered to teach STEM courses in New York City’s afterschool programs and served over 6,700 students in 93 afterschool programs.

**Dr. Lewis Lahana**, CCTE Ed.D. 2014 graduate, His classroom was featured in a CNN podcast about helping kids cross the digital divide: [http://cnnradio.cnn.com/2012/10/05/helping-kids-cross-the-digital-divide/](http://cnnradio.cnn.com/2012/10/05/helping-kids-cross-the-digital-divide/)

**Dr. Xiaodong Lin**, Professor in CCTE, lead a $2.5 million study, funded by the National Science Foundation that will teach kids that Einstein struggled, too – and that the brain can change if you work hard. For more information visit: [http://www.tc.columbia.edu/academics/?facid=xdl2001](http://www.tc.columbia.edu/academics/?facid=xdl2001)
Accomplishments and Announcements – Continued

Richard Lee, Science M.A. 1999 graduate, Alfred P. Sloan Foundation/Fund for the City of New York 2009: Excellence in Math and Science Teaching Award. This is the first year the two agencies recognized NYC DOE teachers in middle and high schools for their work in math and science education. Awards are given on the basis of nominations by school principals, followed by interviews with the candidate’s students, colleagues, and the candidate himself. Impressions from a visit to the classroom to watch the candidate in action are also used as a criterion.

Dr. Felicia Mensah, Professor in Science Education was highlighted in an article, “An Experiment in Storefront Science Education,” where Professor Mensah shares what makes a good learning environment in the classroom. For more information please visit: http://www.thirteen.org/metrofocus/2012/09/an-experiment-in-storefront-science-education/


Dr. Ann Rivet, Professor in Science Education was speaker at Connecting Advances in Learning Research and Teacher Practice: A Conference About Teacher Education. For more information visit: http://www.tc.columbia.edu/summerconference/index.asp?Id=About+The+Speakers&Info=Ann+Rivet

Dr. Mathangi Subramanian, CCTE Ed.D. 2010, received a Fulbright Fellowship to India, where she will be studying the new national early childhood education policy.
Faculty, Adjunct, Student and Alumni
Publications and Presentations


Faculty, Adjunct, Student and Alumni
Publications and Presentations


The MST Times is available online the e-newsletter features interview videos, active links, and articles archives.

**MST Times e-newsletter:**

http://blogs.tc.columbia.edu/mst

**MST Department YouTube Channel:**

http://www.youtube.com/user/teacherscollegemst

Kenny Nienhusser, Director of Academic Administration for the Department of Mathematics, Science and Technology, created MST Times in Fall 2005.

Deiana Jackson, the Assistant to the Director of Academic Administration for the Department of Mathematics, Science and Technology, created the MST Department YouTube Channel in Spring 2012.

Each year, the MST Department Graduate Assistant is responsible for writing and editing the newsletter. Below, editors and respective volume numbers are listed.

Volume I (2005-2006): Raven Hebert
Volume V (2009-2010): Amy J. Rae and Diane R. Murray
Volume VI (2010-2011): Diane R. Murray
Volume VII (2011-2012): Yamit Daon (editor of Issue I) and Deiana Jackson (Issue II and Issue III)
Volume VIII (2012-2013): Deiana Jackson, deiana.jackson@tc.columbia.edu

If you would like a copy of the MST Times, please email your request, including full name, phone number and mailing address to Jeffrey Jaech, at jj2205@tc.columbia.edu.