Congratulations to:

- Dr. Alan Sultan on his new position as Chair of the Mathematics Department
- Joanna Ortiz (T-16) for receiving honors from the Mathematics Department
- Faviola Guzman (T-16) for receiving the Excellence in Math Award from the SEEK Faculty
- Gabi Wiesel (T-1) on the birth of her son Avery on May 16, 2017
- Denina Screen (T-12) and Anil Sookhoo (T-12) on their marriage on July 9, 2017
- Maria Leon Chu (T-9) on her marriage to William Yu on July 15, 2017
- Irina Kimyagarov (T-2) on the birth of her son Sincho on August 1, 2017
- Michelle Yacoub (T-10) on her marriage to Daniel Perelman on August 17, 2017
- Nicole Turato (T-13) on her engagement
- Sara Liu (T-3) on the birth of her son Liam on September 21, 2017

Daniel Zaharopol

Daniel Zaharopol, Founder and Director of Bridge to Enter Advanced Mathematics (BEAM) and Executive Director of the Art of Problem Solving (AoPS) Foundation, will be the keynote speaker at the sixteenth annual TIME 2000 event, Celebrating Mathematics Teaching, on November 3, 2017, at Queens College. BEAM is a program that provides support, mentorship, and various opportunities to underserved students, to prepare them for careers in mathematics and the sciences. He also serves on the Advisory Board for the New York Center for Mathematical Talent and he serves as Chair of the Mathematics Foundation of America. He has experience teaching at the University of Illinois, Canada/USA Mathcamp, MIT, and the Boston Math Circle. Thus, it is with great pleasure that TIME 2000 welcomes Daniel Zaharopol as the keynote speaker for Celebrating Mathematics Teaching. I had the privilege to interview him about his experiences with mathematics and teaching:

Q: At what point in your life did you become interested in mathematics? Were you interested in any subject prior to mathematics?
A: I think I was always interested in mathematics on some level, but I didn't understand what it was until I attended a program called Canada/USA Mathcamp after my junior year in Vestal Senior High School in NY. I discovered that math is beautiful, joyous, interconnected, and full of interesting challenges and things to discover. Before then, I really hadn't appreciated the beauty of the subject.

I've always maintained an interest in all kinds of science-related fields, especially astrophysics, physics in general, and computer science. I've also always enjoyed creative writing and storytelling.

Q: What inspired you to begin teaching mathematics?
A: The first class I taught was at Mathcamp. It was a presentation about a project I'd done, and I enjoyed the experience. (I got only one piece of advice from one of the Mathcamp faculty before the presentation: “Always pee before giving your lecture!”) However, in college, I started to do more teaching and I loved the back-and-forth, the improvisation, and the energy of a good classroom. It reminded me of doing Mock Trial in high school, which I also always loved.

Q: What do you enjoy the most about your role as BEAM Founder and AoPS Foundation Executive Director?
A: Working with the students! They come up with so many crazy ideas, and you can feel their energy when they understand something new. They also really appreciate this opportunity. A close runner-up for what I enjoy the most is the sense of building something big and lasting for the world.

Q: Which factors of BEAM do you find to be most inspirational in providing opportunities in mathematics to underserved students in New York City?
A: That the kids can meet other kids like them who love math. A lot of people think doing math is lonely, but that's just wrong. Once you see that there are other people like you, that you can work with them, and share your discoveries, and joke about math together, it changes your whole perspective on the field.

Q: What motivated the expansion of BEAM to Los Angeles? What excites you most about the expansion?
A: We’ve always wanted to demonstrate that BEAM can have national scope because we think this opportunity should be available to students everywhere. I think I'm most excited by the challenge. A lot of programs have difficulty scaling up while maintaining program quality. I think we've built ourselves to sustain our quality, but we'll see!

Q: As pre-service math teachers, TIME 2000 students are always interested in the future of math

(Continued on page 2)
pedagogy. What, if anything, can you indicate in the field of mathematics education that you feel will play a big role in the next generation of math teachers?

A: I think the big question is how to get students really actively thinking about the math they're working on. That question has motivated a lot of fads in education, and so teachers tell themselves a lot of things that they think will help. We've had all kinds of interventions, from discovery-based learning to blended learning to games and activities. None of these, on their own or done poorly, actually gets kids to think deeply. If we can design pedagogy to do that, then students will learn math well and enjoy the process.

Q: What approaches would you recommend for teachers to use in encouraging their students to have deep thoughts about mathematics?

A: Think very carefully about the questions you ask students. Can you turn it around in a way that makes it just a bit unlike any other question they've heard before? Ask it backwards, upside-down, something that makes sure they can't just use the same old procedure but have to really process it and think about it. Math contests do a really good job of this. Also, encourage inquiry among the students. Communicate to them what mathematics is, that it's not about memorizing processes but it is really about understanding. Engage them in the search for that understanding, and tell them they're not supposed to understand how to do a problem right away. Otherwise, it's a boring problem!

Q: What advice can you give to prospective math educators and the students of TIME 2000?

A: Design your classes from the perspective of the students. Don't think about what you're doing. Think about what the students are doing, and what they're thinking, and how you can get them to have those deep thoughts about math.

Q: What else would you like to share?

A: Math is beautiful, and a really well-done math class is art. Design carefully!

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TIME 2000 Alumna Attends Space Camp

By: Nicole Turato (T-13)

In June, 2017, after I completed my third year as a mathematics teacher at Herricks Middle School, I attended Honeywell Educators at Space Academy (HESA) STEM (i.e., Science, Technology Engineering, and Mathematics) Educator professional development. It was held at the U. S. Space & Rocket Center in Huntsville, Alabama. Participants from all over the world were provided with 45 hours of classroom, laboratory and field training, as well as simulated astronaut training exercises, simulations, scenario-based space missions, and more. The U. S. Space & Rocket Center also provides three programs for students: Space Camp, Aviation Challenge and Space Camp Robotics. It was incredible how many students attended these camps at the same time I attended HESA. As a participant of HESA, I took part in two simulations. One was a mission to Mars on the SLS Orion. This mission was a futuristic mission since NASA has not yet sent a human to Mars. On this mission, I was the pilot on Orion and I participated in an Extravehicular Activity (EVA). My partner and I had to build a solar panel to allow for electricity to work on Mars. We were able to sit in an anti-gravity chair which made the task more realistic. The second mission was to the International Space Station on the Shuttle. This mission was similar to missions that have actually occurred. What I found most valuable about the missions was that the educators were now the students. We had to work together to succeed in a common task and each participant had a specific job that allowed for success of the mission. Being placed back into the shoes of a student was the most eye-opening experience for me during HESA. I was able to understand what my students feel when I ask them to complete group tasks and now I have a better understanding of the level of engagement I want my students to experience.

In addition to participating in typical Space Camp activities, I attended talks by various speakers who have influenced the NASA program in some way: Author Homer Hickam, Astronaut Clay Anderson, and the author of The Real Space Cowboys, Ed Buckbee. I also engaged in various STEM lessons from fellow educators that allowed us to see the potential of what we learned at HESA for implementation in our classrooms. One activity I found most interesting was when we built a rocket and programmed Raspberry Pi using Python to record the acceleration of our rocket. Since computer science and programming are now being emphasized in schools, I found this experience very valuable. NASA provides countless educational resources that are ready to be implemented and adapted to fit the needs of any classroom. A great benefit of attending HESA has been the networking opportunities. Working with educators from across the globe allowed for a diverse and valuable learning experience. This school year, not only am I incorporating the resources I have received for my classroom, but HESA has changed my mindset regarding lesson plans. When planning lessons now, I like to think of the level of engagement and enjoyment I had at HESA, and I want to create lessons that spark that level of engagement for my students. HESA has been truly an amazing experience and I want to thank everyone at Honeywell that made this experience possible. HESA will truly inspire STEM teachers across the globe and will further push the STEM initiative and inspire students to pursue and take an interest in STEM-based careers. If interested in applying to attend HESA, please visit https://educators.honeywell.com.
QC Math Department Elects New Chair  
By: Catherine Choi (T-18) & Emily Fung (T-18)

Our beloved Dr. Alan Sultan is now the Chair of the Queens College Mathematics Department! Dr. Sultan is a dedicated mathematics professor who has been part of our TIME 2000 family since 1997. Even though many of us will miss seeing his enthusiasm for mathematics in the classroom, he will bring the same enthusiasm to his new position. Over the summer, we had the opportunity to get to know more about Dr. Sultan and his future plans for the math department. Dive into this interview to learn more about the new chairperson!

Q: How did you become interested in mathematics?  
A: I became interested in mathematics when I was in the 8th grade. My math teacher failed me in math and I was so upset that I decided to prove that I could do it. So I studied hard and then, all of a sudden, I saw that I had ability in mathematics. She would give “problems of the week,” some difficult problems to solve, and I solved a couple of them and then she made a big fuss over me. So I thought this is a good thing; if someone is making a fuss over me, then this must be good. So I became interested in math and from there on, that was it. I studied hard and I did well.

Q: What did you want to be when you were a child?  
A: When I was growing up, I wanted to be a pilot. But I couldn’t because in those days one needed to have perfect vision to be a pilot and I wore glasses. Then, I thought of joining the FBI but I figured they would never take me because my family is a bunch of criminals.

Q: Now that you’re the Chair of the Math Department at Queens College, what are some things you would like to change?  
A: There are lots of things I’d like to change. We have students who have been taking M141 through M143 and taking M151 and M152 and getting credit for both tracks even though they’re the same course. So I have to fix those kinds of things, as well as different abuses that people have committed that I’ve noticed when I reviewed transcripts. I also want to start a new program in Data Science. That’s the latest thing in applied math. There are lots and lots of jobs, millions of jobs coming up in that area. I also want to make the math department office a very comfortable place for people. I want people to feel like they can come to us and we’ll be here for them.

Q: Did you ever think that you would become the Chair when you first started your career at Queens College?  
A: Well, this is an interesting story. When I was younger, I wanted to be the Chairperson, but I was considered “radical” by too many people because I had all these new ideas. I wanted to hire great teachers and I wanted to build this into the best math department in the city, and that was threatening to a lot of people. I had all these ideas and people didn’t like them and I never got to be Chairperson; they wouldn’t vote for me. Then, as I got older, I said the same exact things that I said when I was younger. However, I had white hair now, so people figured it was wisdom that I was speaking, even though it was the same thing that I said to them 30 years ago. I really wasn’t planning to run for election, but people came over to me and said, “You should try it,” and here I am!

Q: Have you always seen yourself in a leadership position?  
A: I wouldn’t say I’ve always seen myself in a leadership position, but I felt like I could do things that other people might not have been able to do because I can be very aggressive if I need to be. There are a lot of people who say, “We can’t do this,” and give up. I am not that kind of person; I would push it and say, “Well, why can’t we do this? What’s stopping us from doing this?” And I would just push forward, so that’s what I hope I can do. I hope I can get things accomplished that are not so easy to accomplish, but I also realize I’m working with this big bureaucracy and it will not be easy to get things done. It’s like Congress, like Washington D.C. But I’m looking forward to it.

Q: Who encouraged you to pursue a career in mathematics?  
A: My eighth grade math teacher encouraged me. When she failed me, she gave me the best lesson in my life, which was that you have to take responsibility for yourself. I deserved to fail; it was a good lesson. She taught me that if I wanted to succeed, I had to do it on my own. So that’s why I am not reluctant to fail people because I know it’s a better thing down the road. It shakes people up and it causes them to work harder, and I don’t think that’s a bad thing.

Q: Play an important role in the TIME 2000 program. As a math advisor, how do you think your relationship with the TIME 2000 program is going to change?  
A: Well, it’s going to change drastically because I’m not going to be teaching many courses at this point in time. I am teaching Math 505 in the fall, and it will probably be my last TIME 2000 class until I leave this job. Even afterwards, I may not go back; I was there for almost twenty years. So I will continue to be the advisor and I will try to help students as much as possible. Whatever I can do as a chairman, I will do. TIME 2000 students need good professors because students in TIME 2000 have the biggest impact down the road. If you’re going to be a teacher, you’re going to be preparing thousands and thousands of people. So your job is very important, you’re going to need good role models.

Q: Throughout your 45 years as a professor at Queens College, what difficulties did you face?  
A: I experienced lots of hardship. It is very difficult to get promoted here. Professors really have to push and publish a lot of material and that’s very tough.

Q: Speaking of professors, what qualities would you look for in future adjuncts and professors who want to join the math department?  
A: Well, that is one of the other things I want to do. I want to upgrade the adjunct faculty. The way we do things now, we just put bodies in class-rooms at times because we need them, but I want the adjuncts to know how the whole thing fits together. I would like an adjunct to teach, let’s say, Math 115 one semester, and then 122, and then 141, and then 142, and then 143 so they can see how everything fits together. I don’t know if it’ll be possible since some adjuncts will not be good at teaching Calculus, so those I will keep in their present courses. But what I would like to do is get better teachers; this has always been my goal.

Q: Are you excited for the more political side of this job?  
A: I hate politics. I’m a direct guy. I just say things as I see them. I am not likely to say what is politically correct. I’m more likely to say what will benefit the students. So that can cause problems down the road, but I’ll find out as I do the job. If I find out that being direct is not working well, then I’ll adjust and I’ll learn to speak in different ways.

Q: What do you think you’re going to miss the most about being a professor?  
A: Well, I am a teacher. That’s my thing. So, I am going to miss the students, but I have a chance to help students in a different way and in a different capacity. Maybe, in a year, I will say I miss the classroom too much and I’ll want to go back. Maybe I’ll find that I can be very effective in this position, so maybe I’ll want to continue to do this. It’s unknown at this point.

Q: What other advice would you like to give?  
A: For anybody, my advice is you always have to take a job that you love. If you don’t love it, then it’s not worth taking. For those of you who are stuck, get out if you can. I once had an adjunct many years ago. It was her first year of teaching and her father was also a math teacher, which is probably why she became a math teacher, and she was just awful. I could see that she didn’t want to be there; she was just there to please her father. So I said to her, privately, “Seems to me like you hate this job and this is your first year. What do you think it’s going to be like 20 years down the road? I think you should reconsider what you’re doing.” She listened to me. She changed. She really didn’t like that job and she was happy that she left. So, if the time comes and you say it’s the same old thing over and over again, then look for something else.

Q: Would you encourage TIME 2000 students and math educators to pursue leadership roles?  
A: Most of the people who graduate from the TIME 2000 program are actual leaders, so yes. We have a lot of alumni who became principals or assistant principals, and presented at conferences. You folks in TIME 2000 are really the best.
TIME 2000 Memories
2016-2017

Members of T-6, Class of 2007, at Dr. Artzt’s Annual Reunion Party on June 7, 2017, above

TIME 2000 students and faculty at the Queens College Gala at Guastavino’s in Manhattan on May 3, 2017, right

T-16 at TIME 2000’s Graduation Ceremony on May 10, 2017, above

T-16 at QC Commencement on May 26, 2017, above

TIME for Puzzles!

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BINOMIALS | SUBTRACTION
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CALCULUS | CHALKBOARD
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