Title: MSc student joins new mathematical sisterhood

With the support of the LSE Department of Mathematics, I had the honor of attending ***"It All Adds Up: Celebrating 150 Years of Women Across the Mathematical Sciences"*****,** an annual conference for women in mathematics, organized by the London Mathematical Society (LMS). The conference took place at the Mathematical Institute at Oxford University from April 14 to 17, 2015. The event brought together women and girls of all backgrounds, who share a passion for mathematics.

Having read Simon Singh's "*Fermat's Enigma: The Epic Quest to Solve the World's Greatest Mathematical Problem"* the previous summer, I was filled with wonder and awe as I entered the Andrew Wiles Building; the airy abode of the Mathematical Institute. To honor Maryam Mirzakhani's groundbreaking achievement, as the first woman to win a Fields Medal, Warwick University's, Dr Caroline Series, kicked off the conference by explaining the underlying concept of Mirzakhani's work to a rapt audience. Dr Miranda Mowbray, a data scientist with HP Labs, then gave the cybersecurity talk "Big data: drinking from the firehose". She reminded the audience to take the long view and have faith in the area of one's interest. When she began her career, as a Data Scientist, the job title did not even exist. She never imagined that her speciality would one day enjoy the kind of rockstar status it does today. When challenged on the intrinsic value of cybersecurity, Dr Mowbray defended her work with a ruminative riposte. "Think of a computer network as the human body. Would you call having a strong immune system pointless?" The conference's message was clear: women have and will continue to push the boundary of the knowledge frontier. With great power, however, comes great responsibility. Dr Mowbray pleaded with the audience, "Being good at maths means you have superpowers. Use your superpowers for good. Do not use mathematics to hurt people. Do not use mathematics to defraud people of their livelihoods."

At the conference banquet at Balliol College, whose fabled dining hall inspired the Great Hall in Hogwarts Castle in the Harry Potter universe, we also mused about the common thread that runs through mathematics, poetry, and heartbeat. Who says mathematics can't be romantic?

In addition to fostering the exchange of mathematical ideas, the conference hosted panel discussions on matters that tend to impact women more: overcoming insecurity and finding work-life balance. The panelists reminded the audience that women often underestimate their own abilities. To compete in the workplace, women must do their best to overcome the reluctance to promote their skills. The panelists also gave tips on how to leverage a PhD in mathematics into an interesting career. One panelist studies avalanches and sand dunes. Instead of being bound to her desk all day, she gets to travel around the world and commune with nature. Another panelist used her expertise to help chocolate manufacturer Cadbury improve the company's milk and sugar supply chains. When Cadbury approached her with a job offer, she was not about to say no to free chocolate!

The most touching discussions centered on the more senior mathematicians. A panelist in her sixties spoke of her inability to land a full-time professorship as a mother with young children in the 1970s. Being stuck with part-time employment meant that she had to delay the building up of her pension fund. Another senior panelist recalled the time when the head of a mathematics department asked her why she needed a higher position as a woman. Fortunately, the younger panelists experienced far less discrimination. Women mathematicians today owe much of their success to the generations before that fought tooth and nail for the fair treatment of women. "We stand on the shoulders of giants," declared the panelists unanimously.

To strengthen the intergenerational bond between women mathematicians, the conference provided sticky notes for school children to post questions about mathematics, and encouraged the more experienced mathematicians to post answers. The result was a colorful mosaic of conversations both heartfelt and humorous. Having been the beneficiary of the the post-baccalaureate program at the Smith College Center for Women in Mathematics, I felt as if I was coming home to my sisters at Smith. I am grateful that I can draw strength and wisdom from the same sisterhood on this side of the Atlantic Ocean.

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