Stevenson Fund report

Research stay at Georgia Institute of Technology – Enrica Mazzon

I am a member of the London School of Geometry and Number Theory, a joint PhD program between Imperial College, KCL and UCL. During the Fall 2018 I spent three months at the Georgia Institute of Technology in Atlanta thank to the Stevenson Fund. This placement provided me with huge opportunities for productive research and career development, as well as strengthening ties between the mathematical communities at Imperial College and in the United States.

I am originally from Italy, where I finished my BSc in Mathematics in 2013. I then joined the research master offered by the Fondation mathématique Jacques Hadamard and I obtained my MSc at the Université d'Orsay in 2015. After broadening my mathematical background through various advanced courses, I started my PhD in pure mathematics at Imperial College London in September 2016.

My research placement supported by the Stevenson Fund was at the Georgia Institute of Technology. This is a top-ranked public college and one of the leading research universities in the United States. The School of Mathematics is a cornerstone of the Institute, with a vibrant community of faculty carrying out mathematical research of the highest calibre. The interests of the School are particularly strong in pure fields such as algebra, geometry, number theory, and topology, precisely the areas I explore in my PhD. In line with this, the School has hired leading experts in these branches of mathematics over the years, including Professors Matt Baker, Joe Rabinoff, Kirsten Wickelgren, and my mentor Josephine Yu.

During my stay at Georgia Tech, I explored existing and novel approaches to the theory of algebraic varieties (the main objects of study in algebraic geometry). In particular, I built on and generalised my PhD results, in connection with new techniques coming from the field of tropical geometry. This is a relatively new area in mathematics that transforms questions about algebraic varieties into questions about combinatorial objects, and in which many professors at Georgia Tech have considerable expertise.

In the course of this visit, I was able to form connections with a large number of researchers at the university, which greatly helped with my research as well as my general mathematical development. I realized once again that the challenges which come with international collaboration represent an opportunity to produce high-level research and develop professional networks.