

Doctoral School Research Award Report: Collaboration and Conferences on Topological Graph Polynomials

The Doctoral School's Research Award provided essential financial support that enabled me to collaborate, exchange ideas, expand my academic network and promote my research. I used most of the funding to attend and present my work at the 29th British Combinatorial Conference and at the Special Session on Graph and Matroid Polynomials during the AMS-SMF-EMS Joint International Meeting in Grenoble. But it also allowed me to take part in a three weeklong collaborative research project at Birkbeck, University of London with a visiting professor. These opportunities have been invaluable to my personal and professional development and have created new future opportunities for me within my field.

The British Combinatorial Conference is one of the main meetings within the UK of people working in my broader area of research. The presentation I gave was a fantastic opportunity to introduce my research to a wider and more diverse audience. The questions I received provided useful and relevant ideas outside of my specific field that will further enrich the quality of my research going forward and ensure that my work remains relevant to the broader area of combinatorics. Attending this conference allowed me to keep up to date with the most recent developments in the area and to expand upon my network of combinatorialists.

The Special Session on Graph and Matroid Polynomials was a highly specialised meeting of researchers in my field of topological graph polynomials. It took place during the larger AMS-SMF-EMS Joint International Meeting which over 500 mathematicians attended across the week. I had been invited to speak on my research at the Special Session where I was able to promote my work to specialists in my field, including an author of the paper that provided the basis for a branch of my research. The discussions I was able to have at this meeting provided me with many new, exciting research questions to consider and have opened the door for me to future research collaborations with other attendees. Additionally, I was able to get to know several senior researchers whom I may likely be applying to post-doctoral positions with next year.

Finally, I used some of the funding to cover travel costs for a collaboration with Prof. Lowell Abrams (George Washington University), Prof. Steve Noble (Birkbeck, University of London) and Prof. Iain Moffatt (Royal Holloway, University of London). This was a fruitful collaboration, and we are now in the process of writing a paper together on self-partial duality within topological graphs. Not only has this experience directly benefited my research but allowed me to hone my professional skills at communicating mathematics and working within a group research project. The connections I formed with senior researchers in my field have already resulted in an invitation to speak at a Special Session on Topology, Structure and Symmetry in Graph Theory in a future conference in Boston.

The financial support I received from the Doctoral School paid for accommodation, travel and conference fees, without which I would not have been able to undertake any of the above work. The benefits of their support for me will go beyond these conferences and collaborations. I have already received exciting future opportunities as a direct result of their help.

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