

## Preface

The summer school and research conference “Frontiers in Geometry and Topology” was held at the Abdus Salam International Centre for Theoretical Physics (ICTP), August 1–12, 2022. The conference featured twenty-three speakers who spoke on a broad range of subjects centered around research interests of Tom Mrowka, in recognition of his sixtieth birthday. These subjects included knot theory, the topology of three and four-dimensional manifolds, instanton, monopole, and Heegaard Floer homologies, and Khovanov homology. The speakers ranged from early-career mathematicians to senior leaders. The summer school featured ten speakers, with talks on subjects again reflecting Tom’s interests. The summer school and the research conference each attracted capacity audiences of 72 participants.

We invited all the speakers to submit contributions to this proceedings volume. We received fifteen excellent articles, covering a broad range of subjects within geometric analysis, differential geometry, and low-dimensional topology. They provide a worthy tribute to Tom on the occasion of his sixtieth birthday.

We are delighted to have this last opportunity to express our gratitude to our co-organizers for their invaluable help: Claudio Arezzo, Yongbin Ruan, and especially Paul Seidel, who tirelessly and cheerfully handled all manner of logistical obstacles and almost single-handedly organized the summer school and conference. We also acknowledge the generous financial support of the National Science Foundation (grant number DMS-2154823), the Clay Mathematical Institute, and ICTP. We express our deep gratitude to the ICTP staff members, especially Monica Petronela Ancuta, Viktoriya Lvova, and Adriana Pinto, who provided superb assistance throughout the summer school and research conference. We thank the speakers for their wonderful talks and thank the participants for helping to make the summer school and research conference a resounding success.

Paul Feehan, Lenny Ng, and Peter Ozsváth

January 2024