

# QGQIT15

## Conference on QUANTUM GROUPS & QUANTUM INFORMATION THEORY



**JULY 13 - 17, 2015 at Herstmonceux Castle, UK**

**T**HIS PAST SUMMER Herstmonceux Castle was the site of a Fields Conference on Quantum Groups and Quantum Information Theory. Herstmonceux is a beautiful medieval castle located southeast of London, and is one of England's most important historical treasures; the use of the Castle was made possible through Queen's University (Kingston, Canada).

The event, held from July 13 to July 17, 2015, was organized by Benoit Collins (University of Ottawa/Kyoto University), James Mingo (Queen's University), Ashley Montanaro (University of Bristol), Maria Grazia Viola (Lakehead University), and Moritz Weber (Saarland University).

This conference had a pioneering role in several regards. Firstly, it marked the first time that a Fields event has been held in Europe. The vision is that Herstmonceux plays a continuing role in the Fields agenda as an alternate site. This way, Fields can establish closer working relationships with European institutions and thereby extend its reach both scientifically and financially.

Secondly, the conference opened the door to new interactions in mathematics. While Quantum Groups and Quantum Information Theory are well established and very active areas of research, the links between the two fields are just beginning to be recognized and developed. Instrumental in this regard has been the work of M. Neufang, J. Crann, M. Junge, B. Collins, M. Brannan, and others, who have used quantum groups to provide new counterexamples and channels in quantum information theory.

The conference at Herstmonceux Castle was an opportunity for researchers in Quantum Groups and in Quantum Information Theory to explore these links, learn from each other, and start new collaborations. Forty seven participants from Canada, the United States, Europe, Australia, Korea and Japan gathered at Herstmonceux Castle for the five day workshop. They included many of the leading experts in each of the two areas, several postdoctoral fellows and graduate students.

Moreover, the London Mathematical Society selected the event to be part of the activities commemorating its 150<sup>th</sup> anniversary. To celebrate the occasion two special talks were given by Stanislaw Woronowicz (University of Warsaw) and Aram Harrow (MIT) on the first afternoon on the conference, providing an introduction to each of the fields of research. Apart the excellent talks given by twenty-three speakers, two very interesting open problems sessions were held during the workshop.

For five days every room in the castle and every corner of the beautiful courtyard was vibrating with mathematical ideas and discussions. Similar to the workshops held at the Banff International Research Station, participation at the conference was by invitation, and the attendees were accommodated at the castle during their stay. All the participants truly enjoyed not only the workshop, but also the spectacular surroundings.

Sponsorship of the event included the generous support of the Fields Institute, and funds provided by the London Mathematical Society, the European Research Council Advanced Grant of

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# GENERAL SCIENTIFIC ACTIVITIES



Roland Speicher, the European Research Council Starting Grant of Matthias Christandl, and Lakehead University.

Planning is already underway for a second “test” conference at Herstmonceux Castle, which will take place from June 20 to June 26, 2016. It will be a Retrospective Workshop for the 2013 Thematic Program on Calabi-Yau Varieties: Arithmetic, Geometry and Physics, organized by Mark Gross (University of Cambridge), Radu Laza (Brook University), Matthias Schütt (Leibniz University Hannover), and Noriko Yui (Queen’s University).

The possibility of organizing additional conferences at Herstmonceux is now open to the entire Fields community. Members are invited to join this initiative by filing a proposal for a conference at the castle during the summer months of 2017 or possibly 2018. A good fit requires a substantial European participation profile, and requires that the Fields funds be matched by one or more European sources. Further information, or inquiries should be directed to Bob Erdahl at Queen’s University (robert.erdahl@queensu.ca).

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*Maria Grazia Viola (Lakehead University)*

