Report: Research School on quantum symmetries

Date and place

June 24-July 5 2019, Bogotá, Colombia

https://matematicas.uniandes.edu.co/eventos/2018/quantum/index.html

Organizing Committee

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Scientific program

The notion of a group describes symmetry in mathematics. In recent decades, certain quantum mathematical objects have appeared whose symmetries are better explained by group-like objects called tensor categories. Examples of areas of mathematics where tensor categories play a crucial role include subfactors, quantum groups, Hopf algebras, quantum topology, and topological quantum computation. The aim of the school was to introduce graduate students to tensor category theory and their applications to Topological Quantum Field theory, Subfactor theory, and Hopf algebras. We brought together a wide variety of senior experts, postdocs, and graduate students from mathematics and physics. This mix of people provided some young researchers with opportunities to interact with experts and increase their exposure.

The Research School on quantum symmetries took place in two weeks (10 working days). The meeting consisted of a series of lectures (six mini-courses, one hour and a half for days every mini-course), each mini-course with three problem-sessions, two research talks, one public lecture (given by Eric Rowell), two training sessions, a poster session and a reception. All conferences and activities, except for the public lecture, were held in English.

Speakers and themes of these lectures were :

Mini-courses:

Course 1
Tensor categories
Victor Ostrik
University of Oregon

Course 2
Hopf Algebras and Their Generalizations from a Categorical Point of View
Gabriella Böhm
Wigner Research Centre for Physics of the Hungarian Academy of Sciences
Course 3
On finite-dimensional Hopf algebras and their representations
Siu-Hung Ng
Louisiana State University

Course 4
The Mathematics of Topological Quantum Computing
Eric Rowell
Texas A&M University

Course 5
Topological Quantum Field Theory
Noah Snyder
Indiana University, Bloomington

Course 6
Subfactors, fusion categories, and planar algebras
Scott Morrison
Australian National University

For lecture notes and problem session please see at https://cesarneyit.github.io/Cursillo-CIMPA.github.io/