

THE RESEARCH TRAINING NETWORK "ALGEBRAIC COMBINATORICS IN EUROPE"

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I shall present the highlights of the scientific activities of the eight teams of the network in Bordeaux, Jerusalem, Linköping, Lyon, Marburg, Marne-la-Vallée, Roma, and Wien, which include:

- the proof of the combinatorial invariance conjecture for Kazhdan-Lusztig polynomials in an important special case
- the proof of the conjectures on the random assignment problem
- important progress on the Charney-Davis conjecture on (certain) simplicial complexes
- new bijections between maps and trees with interesting applications to the Ising and the hard particle model on maps