“At the crossroad of algebra, combinatorics and physics: a story of the mysterious and ubiquitous sequence 1, 2, 7, 42, 429, ...”

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Abstract: At the beginning of this century, the physicists Razumov and Stroganov discovered a certain sequence of integers appearing in the study of some model for "quantum spin chains". This sequence was already known by combinatorists in the enumeration of various classes of combinatorial objects: alternating sign matrices, 3D partitions of integers, tiling of hexagons on a triangular lattice. In the last 30 years, intensive studies have been made about these objects, beautiful and simple conjectured enumeration formulae had to wait for a long time before being proved. But many researches remain to be done in order to "understand" these formulae and the relationship with quantum spin chains model in physics. No prerequisites are needed for this conference, neither in physics nor in combinatorics. I will give a short introduction to enumerative combinatorics and will finish by introducing a recent algebraic approach with operators and commutations.

Apoio:
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