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The duality in the affine actions on trees

Ievgen Bondarenko

Every action on a tree given by a (finite) automaton has an associated dual action given by the dual automaton. In this talk I will consider the affine groups of subrings of a global function field, construct their actions on a regular tree, and describe the dual action. In particular, this gives a natural family of bireversible automata and square complexes with interesting properties coming from the affine groups of global function fields. The talk is based on a joint work in progress with Dmytro Savchuk.

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On the classification of the serial principal posets

Vitaliy M. Bondarenko, Maryna Styopochkina

A finite poset S is called principal if the quadratic Tits form $q_S(z) := z_0^2 + \sum_{i\in S} z_i^2 + \sum_{i<j,i,j\in S} z_i z_j - z_0 \sum_{i\in S} z_i$ of S is non-negative and $\operatorname{Ker} q_S(z) := \{t \,|\, q_S(t) = 0\}$ is an infinite cyclic group, i.e. $\operatorname{Ker} q_S(z) = t_0\mathbb{Z}$ for some $t_0 \neq 0$. We call a principal poset S serial if for any $m \in \mathbb{N}$, there is a principal poset $S(m) \supset S$ such that $|S(m) \setminus S| = m$.