Combinatorics at KTH

The combinatorics group at KTH was started in 1987. The current members (May 1995) are *Anders Björner, Henrik Eriksson, Kimmo Eriksson, Olle Heden, Johan Karlander, Bernt Lindström, Lars Svensson.* The current graduate students are *Svante Linusson, Dmitrij Kozlov, Johan Wästlund.*

1 Research interests.

1. **Combinatorial Coxeter group theory:** The language of reduced expressions; Partial orders: Bruhat order and weak order; Kazhdan-Lusztig theory; Affine groups, permutational representations.
2. **Subspace arrangements:** Arrangements (hyperplanes and the general case); Intersection lattice (in particular partitions with forbidden block sizes); "k-equal" arrangements of type A_n, B_n, D_n; Reflection arrangements: Arrangements from hypergraphs, simplicial complexes, etc.
3. **Topological methods in combinatorics and complexity theory:** Topological method; Homology/Betti numbers, homotopy type, shellability, Cohen-Macaulayness; f-vectors; Decision tree complexity; Explicit lower bounds.
4. **Enumerative combinatorics:** Permutations; Signed permutations; q-analogs; Möbius function; (Forbidden) subwords and factor words (free monoid); Finite Radon transform.
5. **Matroids and geometry:** Matroids; Algebraic matroids; Oriented matroids; Greedoids; Finite geometries and codes; Partial spreads and Bruen chains; Convex polytopes.
6. **Strongly convergent games:** Chip firing game; Number firing game; Pebbling game, etc.

2 Results.

See the list of references. It contains the publications of the group since 1991.

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