# On The Number Of Slim Semimodular Lattices

Gábor Czédli
*University of Szeged, Hungary*

Joint talk with T. Dékány, L. Ozsvárt, N. Szakács and B. Udvari

A lattice $L$ is *slim* if it is finite and the set of its join-irreducible elements contains no three-element antichain. Slim, semimodular lattices were previously characterized by G. Czédli and E. T. Schmidt as the duals of the lattices consisting of the intersections of the members of two composition series in a group. Our main result determines the number of (isomorphism classes of) these lattices of a given size in a recursive way. The corresponding planar diagrams, up to similarity, are also enumerated. We prove that the number of diagrams of slim, distributive lattices of a given length $n$ is the $n$-th Catalan number. Beside lattice theory, the paper includes some combinatorial arguments on permutations and their inversions.

czedli@math.u-szeged.hu