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Order congruence lattices have convex ear decompositions

A convex ear decomposition of a simplicial complex writes the complex as an ordered union of simplicial polyhedra (and certain portions thereof) that obeys certain restrictions reminiscent of those for a shelling. Complexes with convex ear decompositions are doubly Cohen-Macaulay, and inherit strong relationships on their f - and h -vectors from the Lefschetz property for simplicial polyhedra.

In joint work with Jay Schweig, we have produced a convex ear decomposition for the order congruence lattice of any finite poset. An essential tool is the shellability and comodernism of these lattices.