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Small, sparse and ordered

An ordered graph is a simple graph with a linear order on the vertices. Ordered graphs have been particularly studied in extremal graph theory and in Ramsey theory. We show how the presence of a linear order allows to link, for a hereditary class of binary structures, the notions of "structural sparsity" (through the notion of twin-width), the notion of smallness, the model theoretic notion of dependence, and the parametrized complexity of first-order model checking.