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EXTERIOR FORMS ON DIGRAPHS

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A differential calculus on an associative algebra A is an algebraic analogue of the calculus of differential forms on a smooth manifold. The discrete differential calculus is based on the universal differential calculus on an associative algebra of functions on discrete set. By a natural way, we can consider this calculus as a calculus on a universal digraph with the given discrete set of vertexes. This approach gives an opportunity to define differential calculus for every subgraph of the universal digraph. The introduced notion provides relations between graph theory, geometry, and discrete mathematics. We consider several examples.