

# Cohomology and other invariants of Lie algebras coming from dual operads

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## **Abstract**

It is well-known that the tensor product of two algebras over dual binary quadratic operads carries a Lie algebra structure. We outline a method to compute various invariants of such Lie algebras in terms of their tensor components. On a simple level (cohomology in low degree, symmetric invariant forms, Poisson structures, etc.) this method somewhat resembles the separation of variables in differential equations. On a more sophisticated level (cohomology in arbitrary degree) this leads to a certain spectral sequence defined in terms of Schur functors. Specializing to concrete pairs of dual operads, we arrive at different algebras appearing in structure theory of Lie algebras, K-theory, and physics. Our approach pretends to serve as an organizing principle for various, disjoint so far, results and situations. content...