

## **Algorithms to compute fundamental invariants and equivariants**

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For a finite group, we present an algorithm to compute a minimal generating set of invariants simultaneously to generating sets of basic equivariants, i.e., equivariants for the irreducible representations of the group. The main novelty resides in the exploitation of the orthogonal complement of the ideal generated by invariants. Its symmetry adapted basis delivers the fundamental equivariants. Fundamental equivariants allow to assemble symmetry adapted bases of polynomial spaces of higher degrees, and these are essential ingredients in exploiting and preserving symmetry in computations. They appear within algebraic computation and beyond, in physics, chemistry and engineering. Joint work with Erick Rodriguez Bazan. *Mathematics of Computation* 91 (2022), 2459-2488 <https://doi.org/10.1090/mcom/3749>