

# Periods in action

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The study of integrals of algebraic functions has tremendous benefits in algebraic geometry, an early example is Euler's work on elliptic integrals. Lesser known are the applications to computational mathematics. I will expose some of them.

Specifically, the talk will focus on "periods", that is the result of integrating a multivariate rational function on a cycle. I will show how to compute them, in the form of differential equations, and I will describe two applications to very different problems: the automated proof of binomial identities and the computation of the volume of certain semi-algebraic sets.