

# DifferentialAlgebra

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In this software demonstration, I will present the new Python package `DifferentialAlgebra`.

From a mathematical point of view, it is related to Ritt and Kolchin *differential algebra* [3, 2] which is an algebraic theory for systems of polynomial differential equations.

From a software engineering point of view, it relies over the Python `sympy` package and was released in December 2023. However, it is based over a set of open source C libraries, the first versions of which were initiated almost twenty five years ago. Old versions of these libraries are also involved in the Maple standard library and available through the Maple `DifferentialAlgebra` package.

The source code and other documents are available at [1].

## References

- [1] François Boulier and al. `DifferentialAlgebra`. <https://codeberg.org/francois.boulier/DifferentialAlgebra>.
- [2] Ellis Robert Kolchin. *Differential Algebra and Algebraic Groups*. Academic Press, New York, 1973.
- [3] Joseph Fels Ritt. *Differential Algebra*, volume 33 of *American Mathematical Society Colloquium Publications*. American Mathematical Society, New York, 1950.