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Introducing Cadabra, a field-theory motivated approach to symbolic computer algebra

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The Cadabra symbolic computer algebra system is an open source tool designed specifically for problems in field theory. It has extensive functionality for tensor computer algebra, tensor polynomial simplification including multi-term symmetries, fermions and anti-commuting variables, Clifford algebras and Fierz transformations, component computations, implicit coordinate dependence, multiple index types and many more. The input format is a subset of TeX.

I will present an overview-level introduction for beginners to this system, starting with a discussion of the history behind it, the problems that inspired it, and its relation to other systems, in particular SymPy. I will then focus on some more recent additions which have made Cadabra a more generally useful tool in symbolic (and now also numeric!) computing, and give a brief outline of future directions.

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