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**Special session of the Differential Seminar.
Computation of sums and integrals by
reduction-based creative telescoping by Bruno Salvy,
Inria, ENS Lyon. 15:00-16:00. IHP, Amphitheater
Hermite**

vendredi 1 décembre 2023 15:00 (1 heure)

Abstract. Creative telescoping is an algorithmic method initiated by Zeilberger to compute definite sums or integrals by synthesizing summands or integrands that telescope, called certificates. We describe a creative telescoping algorithm that computes telescopers for definite sums or integrals of D-finite functions as well as the associated certificates in a compact form. In the integral case, the algorithm relies on a generalization of the Hermite reduction in symbolic integration. In the sum case, the algorithm relies on a discrete analogue of the generalized Hermite reduction, or equivalently, a generalization of the Abramov-Petkovsek reduction. We present a Maple implementation with good timings on a variety of examples.