



Du
07
AVR.
2023

16h30
-
18h00

ÉQUATIONS DIFFÉRENTIELLES MOTIVIQUES ET AU-DELÀ

On deciding transcendence of D-finite power series

I'IHP
314

INSCRIPTION

A formal power series in $\mathbb{Q}[[t]]$ is said to be D-finite ("differentially finite"), or holonomic, if it satisfies a linear differential equation with polynomial coefficients. D-finite power series are ubiquitous in number theory and combinatorics.

In a seminal article (1980), Richard Stanley asked whether it possible to decid if a given D-finite power series is algebraic or transcendental.

Several very useful sufficient criteria for transcendence exist, e.g., using asymptotics, but none of them is also a sufficient condition.

Characterizing the transcendence of a D-finite power series is highly nontrivial even if its coefficient sequence satisfies a recurrence of. first order: this question was completely solved only in 1989 by Frits Beukers and Gert Heckman. In this talk, I will present answers to Stanley's question and illustrate them through several examples coming from number theory and combinatorics.

URL of the page: <https://www.ihp.fr/fr/agenda/deciding-transcendence-d-finite-power-series>



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Le musée - Maison Poincaré :

- lundi, mardi, jeudi et vendredi de 9h30 à 17h30,
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