

## Symbolic computation for $D^n$ -finite functions

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**02.05****Antonio Jiménez Pastor***(Research Institute for Symbolic Computation, Johannes Kepler University, Linz, Austria)***Time:** Monday 22.07., 15:30 - 16:00, Room AM

**Abstract:** Hypergeometric functions fall naturally into the category of D-finite (or holonomic) functions, being able to obtain a linear differential equation for each  ${}_pF_q$  hypergeometric function. We recently extended the concept of D-finite functions (power series satisfying linear differential equations with polynomial coefficients) to the recursive idea of  $D^n$ -finite functions (power series satisfying linear differential equation with  $D^{n-1}$ -finite coefficients). We will show in this talk the definition of these  $D^n$ -finite power series and the main properties they satisfy, providing combinatorial examples and open questions related with hypergeometric functions.