

Group Seminar  
Symbolic Computation

Computational Algebraic Analysis

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**Abstract**

In this talk, we give an introduction to the theory of D-modules with a focus on computational aspects. This theory allows us to investigate systems of linear homogeneous partial differential equations with polynomial coefficients by algebraic methods. Many functions can be understood by their annihilating D-ideal. These functions are said to be holonomic. Many functions in a mathematician's daily life indeed are holonomic. We explain their use in concrete applications. Among others, we explain how to compute the area of a TV screen with the help of them.