Algebra of Differential Operators

(3 Lectures)

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The algebra of differential operators reflects the infinitesimal properties of geometrical objects like C^∞-manifolds, Stein spaces, and algebraic schemes. I will provide a concentrated survey of some of the most important results, both old and the very recent ones, pointing out open problems and showing many research opportunities.

In particular, we will see how the exceptional simple Lie algebras $\mathfrak{e}_6$ and $\mathfrak{e}_7$ arrive into mainstrem Mathematics as Lie algebras of differential operators on certain pretty commutative algebras.