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Linear Forms in Logarithms and Their Applications to Diophantine Equations

The theory of linear forms in logarithms is a fundamental tool in number theory, providing effective bounds on the solutions of Diophantine equations. In this talk, we will discuss the general framework of linear forms in logarithms, with an emphasis on the explicit bounds they establish. We will then explore the Baker-Davenport reduction method, which enables a significant refinement of these bounds, making them more practical for explicit computations. Finally, we will illustrate how these techniques facilitate the resolution of classes of Diophantine equations, demonstrating their effectiveness in proving finiteness results and determining explicit solutions. This talk aims to provide a comprehensive yet accessible discussion of these methods, appealing to students and researchers interested in number theory.