Dokuz Eylül University Faculty of Science
Department of Mathematics

SEMINAR

Nonstandard Analysis and Primality Test

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ABSTRACT

In this talk, we first define the height function and the Mahler measure from Diophantine geometry on the field of algebraic numbers. The height function measures the arithmetic complexity of an algebraic number and it has some nice properties. Then, we explain nonstandard analysis which we apply to find certain height bounds. Nonstandard analysis was originated in the 1960's by the work of A. Robinson, which arose as a rigorous and exhaustive way of studying infinitesimal calculus. Combining the properties of the height function with ideas from model theory and nonstandard analysis, we explain how to obtain some uniform height bounds in the polynomial ring over the field of algebraic numbers. This enables us to test the primality of an ideal.

Date & Time: 17 May 2017, Wednesday at 11:00

Seminar Room: B206

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