

Context-Free Grammars and Plane Trees

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Time: Oct 30th, 14:30 – 15:30 Venue: Room 106, SCMS

Abstract:

Context-free grammars, introduced by W.Y.C. Chen in 1993, provide an alternative symbolic mechanism for enumerating combinatorial objects with grammatical labels or patterns. As we will see, this approach enables the deduction of various generating functions and identities without relying on complex recurrence relations or differential equations. In this talk, I will explore the application of context-free grammars to the study of the Catalan numbers, Narayana numbers, Motzkin numbers and related topics. Notably, these three families of classical combinatorial numbers are widely recognized for their deep connections to the enumeration of plane trees.

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