

ABSTRACT:

The combinatorial theory of species was introduced by Joyal in 1986. We can understand the use of generating series for both labeled and unlabeled structures from this theory. The theory of combinatorial species is an abstract, systematic method for analysing discrete structures in terms of generating function. First section covers some basic information about combinatorial species, some examples and generating series for labeled and un-labeled structures is defined. Concluding that cycle index series contain more information than exponential and type generating series. In second section defined that species of structure can be combined to form new species by using set theoretical constructions. Resulting a variety of combinatorial operations on species including addition, multiplication, substitution etc..... In 3rd section first we defined virtual species and explain the species logarithm Ω . Finally there is an exposition of Γ and quotient species and calculate the cycle index series for Γ and quotient species. Further more we want to compute the cycle index series for Γ and quotient species. Also enumeration for species of point determining bipartite graphs.