

Counting phylogenetic networks with the component graph method

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Abstract

The *component graph method* was proposed by Louxin Zhang (and his collaborators) in order to solve several algorithmic problems for tree-child networks, galled networks, reticulation-visible networks and extensions of these classes. Moreover, the method was also used to obtain exact counts of the number of networks with n leaves and k reticulations. We recently used the method to obtain asymptotic counting results for these numbers, too. The purpose of this talk is twofold: first, we will introduce the method and some of our results and second, we will explain how these results are obtained by the method. The talk is based on joint work with Michael Wallner (TU Wien), Guan-Ru Yu (National Kaohsiung Normal University), Louxin Zhang (National Singapore University) and my PhD student Yu-Sheng Chang and (former) master students En-Yu Huang and Hexuan Liu.