1167-20-33 **Qi Yan*** (qiyan@cumt.edu.cn), Xuzhou, Jiangsu 221116, Peoples Rep of China. *Partial-dual genus polynomials and signed intersection graphs.*

Recently, Gross, Mansour and Tucker introduced the partial-dual genus polynomial of a ribbon graph as a generating function that enumerates the partial duals of the ribbon graph by genus. It is analogous to the extensively-studied polynomial in topological graph theory that enumerates by genus all embeddings of a given graph. To investigate the partial-dual genus polynomial one only needs to focus on bouquets, i.e. ribbon graphs with only one vertex. In this paper, we shall further show that the partial-dual genus polynomial of a bouquet essentially depends on the signed intersection graph of the bouquet rather than on the bouquet itself. That is to say the bouquets with the same signed intersection graph will have the same partial-dual genus polynomial. We then prove that the partial-dual genus polynomial of a bouquet contains non-zero constant term if and only if its signed intersection graph is positive and bipartite. Finally we consider a conjecture posed by Gross, Mansour and Tucker. that there is no orientable ribbon graph whose partial-dual genus polynomial has only one non-constant term, we give a characterization of non-empty bouquets whose partial-dual genus polynomials have only one term by consider non-orientable case and orientable case separately. (Received February 04, 2021)