Some Problems
IN
Graph Theory

Binding Number And Line Completion
Number Of Graphs

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By

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Introduction

Woodall [15] introduced the concept of the binding number of a graph and obtained the binding number for complete graphs, complete bipartite graphs, cycles and paths, and deduced some relations between the binding number and other invariants of graphs.

Kane, Mohanty and Halles [7] determined the binding number of product of some graphs and made a conjecture on the binding number of the Cartesian product of two cycles. This conjecture was proved by Guichard [13]. Jianfang, Songlin Tain and Jiuqiang liu [10] computed the binding number of the lexicographic product of some graphs. Chen, Don ling [5] deduced the binding number of the Cartesian product of cycles and complete bipartite graphs.

In [1] Bagga, Beineke and Varma introduced the concept of the line completion number of a graph and computed the line completion number for complete graphs, cycles, paths, fans, wheels and windmills, and have posed the determination of the line completion number of the complete bipartite graph as an open problem.

In this thesis (in chapter 2) we determine the binding number of some families of strongly regular, regular and non-regular graphs. In chapter 3 we obtain the binding number of products of some graphs and in chapter 4
we find the line completion number of complete bipartite graphs which is an open problem posed by Bagga, Beineke and Varma. We also deduce formulae for the line completion number of cocktail party graphs, Latin square graphs and complements of cycles and paths.