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Central Configurations and Super Central Configurations in the Collinear 5-body Problem

In this talk, we present some interesting results of central configurations in collinear 5-body problem. The existence and classifications of super central configurations will be discussed too. Several necessary conditions of super central configurations are proved and they reduce the total 5!=120 permutations to 18 cases. These necessary conditions could be extended to general collinear n-body problem.