Bifurcation of Central Configuration in the 2n+2-Body Problem

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Abstract

Sekiguchi[1] gave an example of bifurcating central configurations in the $2n+1$ Body Newtonian problem for $n \geq 3$, which consists of $2n$ bodies of equal mass in a rosette configuration and one centered body of the other mass. In this paper, the author give an example of bifurcating central configurations in the $2n+2$ Body Newtonian problem for $n \geq 3$, which consists of $2n$ bodies of equal mass in a rosette configuration and two bodies of the other mass equally apart from each other on the vertical axis passing through the center of the rosette. By combining the results of the preceding studies and our main theorem, explicit examples of bifurcating central configuration in the N-body problem are obtained for any $N \geq 4$.

References

[1] M. Sekiguchi. Bifurcation of Central Configuration in the 2n+1 Body Problem. *Celest. Mech. Dynam. Astron.*, 90:355–360, 2004.