

Continuos choreographies

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We consider the limit $N \rightarrow \infty$ of the N-body problem with equal masses and α -s homogeneous potential, with $0 < \alpha < 1$. We obtain the integro-differential equation that the motions must satisfy, with limit choreographic solutions corresponding to travelling waves of this equation. Such equation is the Euler-Lagrange equation of a corresponding limiting action functional. Our main result is that the circle is the absolute minimizer of the action functional among zero mean (travelling wave) loops of class H^1 .