

## SUNDMAN'S INEQUALITIES IN N-BODY PROBLEMS AND THEIR APPLICATIONS

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*Abstract.* In this paper, we study the necessary and sufficient conditions which make Sundman's inequalities become equalities and the relationships between the period and energy and angular momentum and the momentum of inertia for uniformly rotating planar circular solutions and the straight line solutions of N-body problems with homogeneous potentials.

*Mathematics subject classification (2000):* 34C25, 34C15, 58F, 70F10.

*Key words and phrases:* N-body problems, period, energy, angular momentum, the momentum of inertia.

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