

## An iterative method for determining temperature distribution of a spherically symmetric body in a planetary system

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A semi-analytical iterative method for determining the temperature distribution in a spherically-symmetric body with spin motion and eccentric orbital motion is developed. The formulas for determining the change rates of orbital elements due to the Yarkovsky effect are also developed. The advantage of this work compared to Sekiya and Shimoda (2013) is that the effect of the eccentric orbit is taken into account. The advantage of this work compared to Vokrouhlicky and Farinella (1999) is that the temperature dependence on the longitude is taken into account without assuming the symmetry with respect to the rotation axis. We can calculate the temperature distribution as a function of the colatitude, the longitude, and the mean anomaly with arbitrary precision by continuing the iterative method, as long as the eccentricity is less than about 0.7. The details are written in Sekiya and Shimoda (2014).

References:

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