

Thermal Modeling of Comet-Like Asteroids

*Yoonsoo Bach Park^{1,2}, MASATERU ISHIGURO¹, Fumihiko Usui³

1.Seoul National University, 2.Korea Advanced Institute of Science and Technology, 3.The University of Tokyo

Recent analysis on asteroidal thermophysical property revealed that there is a tendency that their thermal inertia decrease with their sizes at least for main belt asteroids. However, little is known about the thermal properties of comet-like bodies. In this work we utilized a simple thermophysical model to calculate the thermal inertia of a bare nucleus of comet P/2006 HR30 (Siding Spring) and an asteroid in comet-like orbit 4015 Wilson-Harrington from AKARI observation data. It is also shown that the determination of their thermal inertia is very sensitive to their spin vector, while the diameter is rather easy to be constrained to a certain range by combining multi-wavelength observational data. Thus, we set diameter and hence the geometric albedo as fixed parameters, and inferred the spin vector and thermal inertia of the targets. Further detailed analyses on these cometary bodies will shed light on our understanding of the detailed surfacial characteristics of them.

Keywords: Thermal model, Asteroids, Thermophysical model