Physical properties of B-type asteroids beyond 2.5 micron

B. Yang[1,2,3] and J. Ji[4]

[1]European Southern Observatory, Chile
[2]Yunnan Astronomical Observatory , Chinese Academy of Sciences
[3]University of Hawaii, USA
[4]Key Laboratory of Planetary Sciences, Purple Mountain Observatory, Chinese Academy of Sciences

B-type asteroids, of which the asteroid (2) Pallas is the largest and most famous example, represent only 4 % of the asteroid population. They are optically blue and many exhibit high albedos. Previous studies suggest that at least some B-type asteroids are likely to have incorporated significant amounts of water ice during formation. These icy asteroids are thought to have eventually experienced intensive aqueous alteration. Previously, most studies of B-type asteroids have been carried out in the visible and near-infrared wavelengths and very few observations of B-type asteroids exist beyond 2.5 micron. Using the 8-m Subaru telescope on Mauna Kea, we conducted a spectroscopic survey of B-type asteroids in the 3-micron region to search for diagnostic features of water ice, hydrated minerals, and organic materials. In addition, we observed 3 B-type asteroids in the thermal infrared from 7 to 18 micron. We will present the main findings of our survey and discuss the implications of our observations.