

Thermal Observations of Six Asteroids :

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The Spitzer Space Telescope (formerly SIRTF) Solar System team (*) reports the measurement of thermal fluxes (24 microns) of six asteroids in a scan with the MIPS instrument centered on 29P/Schwassmann-Wachmann 1 made on 2003 Nov. 24.643 ([see also press release](#)). Four of these are previously known Main Belt asteroids. All six objects were seen at solar phase angles in the range 23 - 30 deg. The 24-micron fluxes and calculated geometric albedos and diameters (using two thermal models, the known absolute magnitudes, and the standard assumed slope parameter $G=0.15$) of the known asteroids are:

		Rapid-rotator model		Slow-rotator Standard Thermal Model	
Asteroid	F 24 um (mJy)	Geometric Albedo	Diameter (km)	Geometric Albedo	Diameter (km)
2003 QY51	30	0.02	4.5	0.04	3.1
1999 GM36	9.5	0.22	3.2	0.48	2.2
5238 Naozane	27	0.30	7.0	0.66	4.8
2000 UN60	8.1	0.13	2.3	0.26	1.6

The two previously unknown objects are thought to be in the Main Belt because of their motion during the exposures. Their diameters are given for an assumed heliocentric distance $R = 2.5$ AU and an assumed Bond albedo of 0.06.

				Rapid-rotator model	Slow-rotator Standard Thermal Model
Asteroid	R.A. (J2000.0)	Dec. (J2000.0)	F 24 um (mJy)	Diameter (km)	Diameter (km)
1	22:17:16.5	-5 12 36	4.4	2.4	1.8
2	22:17:30.5	-5 11 01	2.3	1.7	1.3

These six objects are among the smallest Main Belt asteroids for which radiometric observations have been made; they were found in a scan covering 400 arcmin² on the sky. The uncertainties in the fluxes are $\pm 10\%$ and the uncertainties in the diameters (including modeling uncertainties) of the four previously known objects are of order 30%. The exposure time was 80 sec.

* J. A. Stansberry and G. H. Rieke (U. Arizona), J. P. Emery (SETI Inst.), Y. R. Fernandez (U. Hawaii),

W. T. Reach, V. Meadows, and M. W. Werner (Caltech), J. Van Cleve (Ball Brothers, Inc.), D. P. Cruikshank (NASA Ames). We thank M. D. Hicks (JPL) for assistance in identifying the asteroids.