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1080 Orchis

1080 Orchis, provisional designation 1927 QB, is a dark background asteroid from the inner regions of the asteroid belt. It was discovered on 30 August 1927, by German astronomer Karl Reinmuth at the Heidelberg Observatory in southwest Germany.^[18] The carbonaceous F-type asteroid has a rotation period of 16.1 hours and measures approximately 22 kilometers (14 miles) in diameter. It was named after the flowering plant *Orchis*.^[3]

Orbit and classification

Orchis is a non-family asteroid of the main belt's background population.^[5] It orbits the Sun in the inner asteroid belt at a distance of 1.8–3.0 AU once every 3 years and 9 months (1,374 days; semi-major axis of 2.42 AU). Its orbit has an eccentricity of 0.26 and an inclination of 5° with respect to the ecliptic.^[1] The asteroid was first observed as A906 BH at Heidelberg in January 1906. The body's observation arc begins with its official discovery observation in August 1927.^[18]

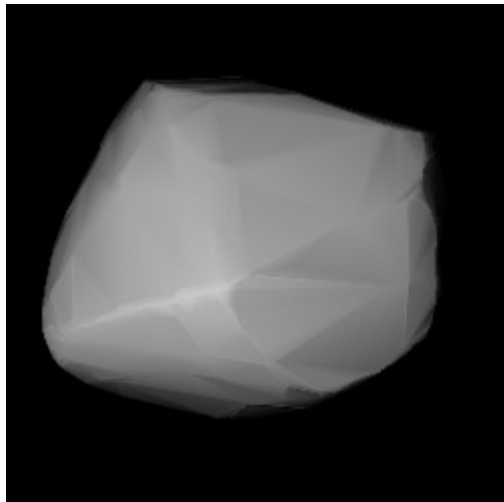
Naming

This minor planet was named after the flowering plant *Orchis*, a genus in the orchid family. The official naming citation was mentioned in *The Names of the Minor Planets* by Paul Herget in 1955 (H 102).^[3]

Reinmuth's flowers

Due to his many discoveries, Karl Reinmuth submitted a large list of 66 newly named asteroids in the early 1930s. The list covered his discoveries with numbers between (1009) and (1200). This list also contained a sequence of 28 asteroids, starting with 1054 Forsytia, that were all named

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 Modelled shape of Orchis from its lightcurve

Discovery^[1]

Discovered by	<u>K. Reinmuth</u>
Discovery site	<u>Heidelberg Obs.</u>
Discovery date	30 August 1927

Designations

MPC designation	(1080) Orchis
Pronunciation	/ˈɔːrkɪs/^[2]
Named after	<i>Orchis</i> (flowering plant) ^[3]
Alternative designations	1927 QB · 1955 DT A906 BH
Minor planet category	<u>main-belt</u> · (inner) ^[4] <u>background</u> ^[5]

Orbital characteristics^[1]

Epoch 4 September 2017 (JD 2458000.5)

Uncertainty parameter 0

Observation arc	111.76 yr (40,821 days)
Aphelion	3.0452 AU
Perihelion	1.7924 AU
Semi-major axis	2.4188 AU
Eccentricity	0.2590
Orbital period (sidereal)	3.76 yr (1,374 days)
Mean anomaly	278.54°

after plants, in particular flowering plants (*also see list of minor planets named after animals and plants*).^[19]

Physical characteristics

In the Tholen classification, *Orchis* is an uncommon F-type asteroid, a type which belongs to the wider C-complex of carbonaceous asteroids.^{[1][4]}

Rotation period and poles

In 2010, three rotational lightcurves of *Orchis* were obtained from photometric observations. Lightcurve analysis gave a rotation period of 16.061, 16.075 and 16.1 hours with a brightness amplitude of between 0.23 and 0.31 magnitude (*U*=2+/2/3).^{[13][15][16]} A modeled lightcurve based on optical data from a large collaboration network found a concurring period of 16.0657 hours and two spin axis of (255.0°, 27.0°) and (71.0°, 28.0°) in ecliptic coordinates (*λ*, *β*).^[14]

Diameter and albedo

According to the surveys carried out by the Infrared Astronomical Satellite IRAS, the Japanese Akari satellite and the NEOWISE mission of NASA's Wide-field Infrared Survey Explorer, *Orchis* measures between 20.755 and 24.62 kilometers in diameter and its surface has an albedo between 0.029 and 0.051.^{[6][7][8][9][10][11][12]} The *Collaborative Asteroid Lightcurve Link* adopts the results obtained by IRAS, that is, an albedo of 0.0430 and a diameter of 23.28 kilometers based on an absolute magnitude of 12.2.^{[4][10]}

References

- "JPL Small-Body Database Browser: 1080 Orchis (1927 QB)" (<https://ssd.jpl.nasa.gov/sbdb.cgi?sstr=2001080>) (2017-10-29 last obs.). Jet Propulsion Laboratory. Retrieved 28 November 2017.
- "orchis" (<https://www.oed.com/search/dictionary/?q=orchis>). *Oxford English Dictionary* (Online ed.). Oxford University Press. (Subscription or participating institution membership (<http://www.oed.com/public/login/loggingin#withyourlibrary>) required.)

Mean motion	0° 15 ^m 43.2 ^s / day
Inclination	4.5873°
Longitude of ascending node	2.0437°
Argument of perihelion	57.028°

Physical characteristics	
Mean diameter	20.755 ± 8.470 km ^[6] <p>21.797 ± 0.130 km^[7] 21.86 ± 0.26 km^[8] 22.918 ± 0.241 km^[9] 23.28 ± 1.7 km^{[4][10]} 23.53 ± 6.59 km^[11] 24.62 ± 6.75 km^[12]</p>
Synodic rotation period	16.061 ± 0.004 h ^[13] <p>16.0657 ± 0.0005 h^[14] 16.075 ± 0.0207 h^[15] 16.1 ± 0.1 h^[16]</p>
Pole ecliptic latitude	(255.0°, 27.0°) (<i>λ</i> ₁ / <i>β</i> ₁) ^[17] <p>(71.0°, 28.0°) (<i>λ</i>₂/<i>β</i>₂)^[17]</p>
Geometric albedo	0.029 ± 0.002 ^[7] <p>0.03 ± 0.02^[11] 0.031 ± 0.032^[12] 0.0331 ± 0.0028^[9] 0.0430 ± 0.007^{[4][10]} 0.0508 ± 0.0499^[6] 0.051 ± 0.001^[8]</p>
Spectral type	<u>Tholen</u> = <u>F</u> ^{[1][4]} <p><u>B–V</u> = 0.624^[1] <u>U–B</u> = 0.206^[1]</p>
Absolute magnitude (<i>H</i>)	12.133 ± 0.002 (<i>R</i>) ^[15] · <p>12.20^{[1][4][8][9][10][11]} · 12.32^[6] · 12.43^[12]</p>