Shape Modeling of 1036 Ganymed from Radar and Lightcurve Data

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Asteroid (1036) Ganymed was discovered in 1924 by Walter Baade. This asteroid is considered the largest Near-Earth object; however, its orbit is completely exterior to Earth's orbit, with a perihelion distance of 1.24 au. Many observations of this asteroid have been made, and for this research we used Arecibo and Goldstone radar data from 1998 and 2011, and lightcurves from numerous apparitions, including new lightcurves from TRAPPIST in early 2023. The Arecibo delay-Doppler images from four nights during Ganymed's 2011 apparition (0.36 au from Earth, its closest approach since discovery) are particularly helpful in revealing surface features. Taking the shape model of Hanuš et al. (2015, *Icarus* 256) as a starting point, we used SHAPE (Magri et al. 2007, *Icarus* 186) to develop a three-dimensional physical model of Ganymed. We find Ganymed to be approximately ellipsoidal with some bumps, with dimensions of about 42 × 41 × 39 km and a volume-equivalent diameter of 38 km. We confirm that Ganymed has a rotation period of 10.31 hours, with a pole direction near ecliptic (180, -75).