

Physical parameters of the near-Earth asteroids from radar observations

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The Institute of Applied Astronomy in cooperation with the Jet Propulsion Laboratory and Goldstone Deep Space Communications Complex regularly conduct intercontinental bistatic radar observations of near-Earth asteroids using 70-m antenna (DSS-14) to transmit 8560 MHz (3.5 cm) signal and 32-m radio telescopes (RT-32) of "Quasar" VLBI network in Svetloe, Zelenchukskaya and Badary observatories to receive the echoes. To carry out such observations, the existing receiving, conversion and recording systems have been adapted and special software for radar observation scheduling and echo signal data processing has been developed. Since 2015, echoes from 2011 UW158, 2003 TL4, 2003 YT1, 2014 JO25, 2003 BD44, 3122 Florence and 2017 VR12 asteroids have been registered. The continuous wave echo power spectra of these asteroids were obtained and their analysis was carried out. We estimated the size, rotation period, radar albedo and circular polarization ratio of these asteroids.