Observational Determination of Near Earth Asteroid Rotation Rates

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The purpose of this research was to classify Near Earth Asteroids. The type of asteroid determines how dangerous they are to Earth and the best way to move them if they will hit Earth. The asteroids chosen for this project were smaller in size because they were more likely to be monolithic asteroids which is the less common type of asteroid. A series of images were taken of the selected targets using telescopes from the Las Cumbres Observatory Global Telescope Network (LCOGT). This series of images allows the brightness of the object to be measured and gives the length of time the object was observed. Plotting the measured brightness of the object versus time on a graph allows the light curve to be analyzed. By measuring the period shown by the light curve, it is possible to determine the rotation rate of the asteroid. Two of the asteroids observed had a rotation rate that was longer than the amount of observation time. Two of the asteroids appeared to be monolithic asteroids, however one is a tumbler asteroid and therefore the rotation rate is harder to determine and may be less accurate. The data supported the premise that both monolithic and rubble pile asteroids exist.

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