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Proposal Information for 2011A-0057

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Title: Long Term Follow-up of Near Earth Objects

Abstract: Recently-discovered Near Earth Objects (NEOs) will be observed using the KPNO 2.1-m telescope to add astrometric observations at arcs of 50 days or more from discovery. These extended arcs place strong constraints on the orbital solution and can greatly reduce the ephemeris uncertainty at the next recovery opportunity. On any night during 2011A, many recently-discovered NEOs will be observable in the range $21 < V < 23$. We will place the highest priority on Virtual Impactors (VIs) and on Potentially Hazardous Asteroids (PHAs) where long arcs can be created. Among 92 objects for which the NEODYs system estimates a non-zero risk of Earth impact, all but 14 are unrecoverable using conventional (not wide field) telescopes. Some 85% of the objects that are the reason for the discovery surveys must be re-discovered at the next favorable opposition and linked to past observations before the impact risk can be reliably assessed. By creating an extended arc, we will reduce the number of VIs and PHAs that accumulate large ephemeris errors, thereby enabling future recovery efforts.

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