

A Survey for Extreme Shape Hilda Asteroids

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Abstract

We will present results of a survey of Hilda asteroids to look for extreme shape objects. We used WISE [1, 2] sparse IR photometry to identify objects with high photometric variability in different bands. Highly variable candidates were targeted by densely sampled, follow-up ground-based photometry.

Similar strategies were successfully used to identify extreme shape objects among Jovian Trojans [3] (see Fig. 1) and Kuiper belt objects [4]. These surveys found high intrinsic abundances of highly variable objects in both population and led to the discovery of contact binaries.

Contact binaries and extreme shape objects are useful as they permit useful bulk density estimates [5, 6] which in the long run can be used to, e.g., trace differences in the bulk composition of different populations. Repeated variability observations of candidate contact binaries among Hilda asteroids will be used to measure their obliquity, which may shed light on how these objects formed [7].

Acknowledgements

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References

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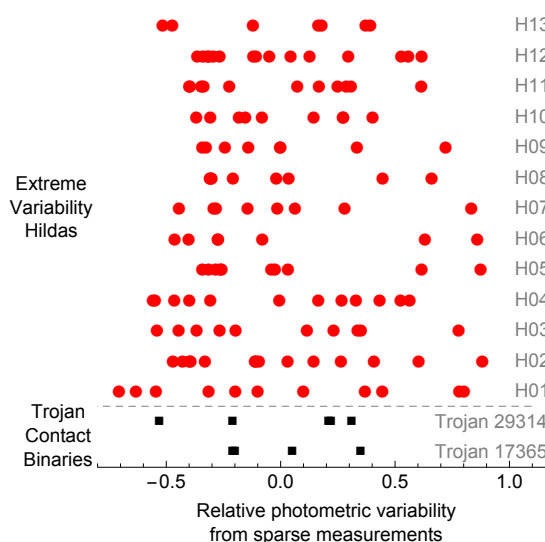


Figure 1: WISE sparse photometry of highly variable Hilda asteroids (red circles; each row represents a Hilda asteroid, labeled H01-H13, and show relative photometry along the x -axis). Also shown is similar sparse photometry from [3] (black squares) that led to the discovery of Trojan contact binaries 29314 and 17365.

[6] Lacerda, P., McNeill, A. & Peixinho, N. 2014, *MNRAS*, 437, 3824

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