

Thermophysical Modelling of Extreme Asteroids

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Asteroids which rotate faster than 3 hours have centrifugal forces that can balance or exceed their own self-gravity. If these asteroids are rubble-piles and/or have regolith layers then they require inter-grain cohesive forces (in the form of van der Waals forces) to hold them together. Thermal-infrared observations and thermophysical modelling of these extreme asteroids can provide insights into their unusual physical properties and, potentially, their formation mechanisms. For instance, thermal inertia measurements can infer where regolith is present or absent on these asteroids, and can also provide constraints on their regolith grain sizes. Additionally, modelling of their Yarkovsky and YORP effects can provide insights into their interior structures if detections of these effects are available. In this talk, I will provide an overview of thermophysical model investigations into this unusual asteroid population.