

Abstract Submitted
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Bennu Ryugu: Diamonds in the sky¹ TROY SHINBROT, Rutgers University, New Brunswick, TAPAN SABUWALA, PINAKI CHAKRABORTY, Okinawa Institute for Science and Technology — Rapidly spinning and loosely aggregated asteroids appear to take on diamond-shaped profiles, with elevated poles as well as equators. Yet simulations show that such rubble pile asteroids should tend to evolve into flattened ellipsoids. We derive an analytic expression for shapes of rapidly spinning rubble piles based on the principle that as rubble is deposited it assumes a critical angle of repose. We show that this expression correctly reproduces diamond shapes in simulations provided that the simulations include deposition. This implies that the shapes of such asteroids were produced during their early evolution, and were not a result of later reshaping.

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