

# Mud balls in space may have populated early solar system

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A new model suggests that asteroids may have once been balls of muddy sludge, rather than rock.

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Rock or mud? New research suggests that asteroids may once have been balls of mud.

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Carbonaceous asteroids – the most common kind, which may have been the precursors to rocky planets like Earth – may be made up of unconsolidated clumps of mud rather than rock, as scientists have previously assumed.

Though there has been no firm consensus over how these objects formed in the early solar system, one popular view based on studies of water and rock is that carbonaceous asteroids were created through a process of lithification in which fine-grained dust, ice and

chondrules – round mineral grains – were compacted together under intense heat and pressure.

However, new research by Philip Bland from Curtin University in Perth and colleagues suggests that lithification is not necessary for asteroid formation. Instead, the researchers claim that melted ice in a potential asteroid would have caused its chondrules to form a muddy sludge.

Bland and his colleagues tested this ‘mud-ball’ model, which is **outlined in** <http://advances.sciencemag.org/content/3/7/e1602514> > **Science Advances** <http://advances.sciencemag.org/content/3/7/e1602514> > , by using a computer model to simulate the formation of asteroids with a number of different properties such as varying sizes, mud-to-chondrule ratios and packing densities.

Their experimentation showed that under certain conditions primitive asteroids could be created without the aid of lithification, a finding that is better aligned with the observations of meteorites and asteroids.

This research could be pivotal to the development of a framework for understanding other important celestial creation processes that occurred in the early life of our solar system.



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RECOMMENDED



**Russian missiles to blow  
asteroids to bits**

SPACE

