## **QUESTION CORNER**

Relevant for: Science & Technology | Topic: Space Technology & related matters

New theory: This invokes the Sun's magnetic field. | Photo Credit: buradaki;iStockphoto

A study by researchers from the University of Maryland disputes the prevailing hypothesis on why Mercury has a big-sized core relative to its mantle (the layer between its core and crust). Scientists had argued that hit-and-run collisions with other bodies during the formation of our solar system resulted in much of Mercury's rocky mantle being removed, leaving behind the big, dense, metal core inside. But new research reveals that Sun's magnetism is the reason for this and not the collisions.

The researchers developed a model showing that the density, mass and iron content of a rocky planet's core are influenced by its distance from the Sun's magnetic field (*Progress in Earth and Planetary Science*).

There is a gradient in which the metal content in the core drops off as the four inner planets of our solar system get further from the Sun. The current work explains this by showing that the distribution of raw materials in the early forming solar system was controlled by the Sun's magnetic field.

The new model shows that during the early formation of our solar system, when the young Sun was surrounded by a swirling cloud of dust and gas, grains of iron were drawn toward the centre by the Sun's magnetic field. When the planets began to form from clumps of that dust and gas, planets closer to the sun incorporated more iron into their cores than those further away.

## Our code of editorial values

This study was completed before the emergence of the Delta variant of SARS-CoV-2 now dominating in the U.K.

## **END**

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