A speedy asteroid orbiting in time with Earth is likely to be a wayward chunk of the Moon.

As of now, scientists speculate that they know exactly about which lunar crater it came from.

Published on April 19 in the journal Nature Astronomy, a new study discovers that when a mile-wide (1.6 kilometres) space rock hit the Moon, the near-Earth asteroid 469219 Kamo'oalewa may have been flung into space creating the Giordano Bruno crater.

Kamo'oalewa's size, age and spin all match up with the 13.6-mile-wide (22 km) crater.

Moreover, its light reflectance matches that of weathered lunar rock and its crater sits on the far side of the Moon, the study researchers reported.

In 2025, China plans to launch a sample-return mission to the asteroid. The mission named Tianwen-2 will return pieces of Kamo'oalewa about 2.5 years later, Live Science's sister site Space reported.

"The possibility of a lunar-derived origin adds unexpected intrigue to the [Tianwen-2] mission and presents additional technical challenges for the sample return," Bin Cheng, a planetary scientist at Tsinghua University and a co-author of the new study, told Science.