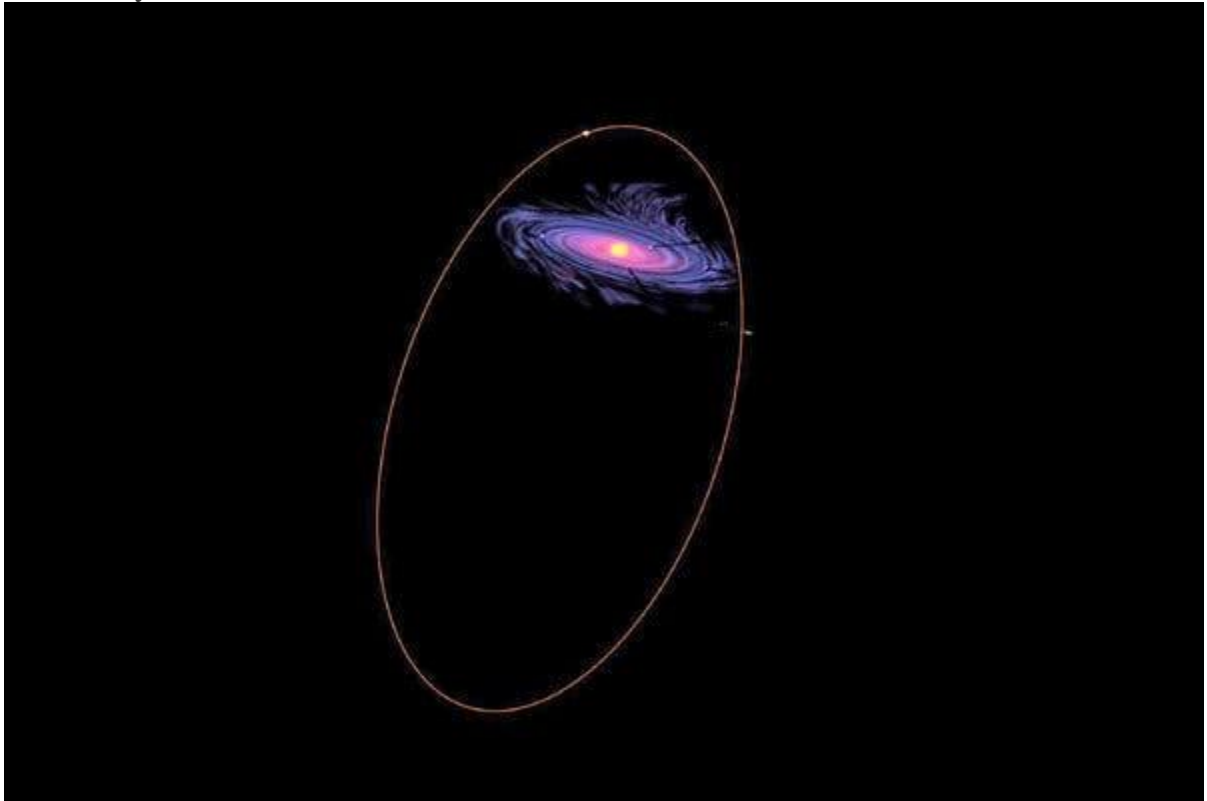


A Nest of Alien Asteroids Orbits Our Sun

Astronomers say they have found orphan rocks from another star, or stars, stashed in the outer solar system.



An illustration of the orbit of a Centaur asteroid. Credit...Namouni and Morais, NASA



By [Dennis Overbye](#)

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A pair of astronomers announced last week that they had identified 19 alien asteroids circling our sun.

The rocks were probably stolen from other nearby stars 4.5 billion years ago, during the birth throes of the sun. Today they mingle in the sky with a class of asteroids called Centaurs that inhabit outer realms of the solar system between Jupiter and Neptune.

But unlike the rest of the Centaurs, the aliens' orbits take them far out of the plane in which the planets go around the sun, suggesting that they were once circling other stars.

Fathi Namouni, of France's Observatoire de la Côte d'Azur, and Maria Helena Morais, of Brazil's Universidade Estadual Paulista, [published their results](#) last week in the Monthly Notices of the Royal Astronomical Society.

In a statement from the Royal Astronomical Society, Dr. Morais said studying these oddball asteroids "will give us clues about the sun's early birth cluster, how interstellar asteroid capture occurred, and the role that interstellar matter had in chemically enriching the solar system and shaping its evolution."

The new work follows on a rash of discoveries of outsider rocks and comets invading or even occupying our space, more evidence that seemingly disparate and isolated realms of the universe are in fact mixing it up over the vast span of cosmic time.

First came [Oumuamua, a barren cigar-shaped rock](#) later identified as a mostly inert comet, found sailing past the planets in 2017.

Last year brought [a more familiar looking comet, 2I/Borisov](#), of interstellar origin to our neighborhood. It now seems to be [breaking into pieces](#) as it attempts to escape our corner of the Milky Way.

Those were only temporary invaders. But two years ago, Dr. Namouni and Dr. Marais first identified an [alien with permanent residency status](#), circling the sun near Jupiter, but in the opposite direction.

At the time, they suggested that there were probably other “extrasolar” occupants out there, most likely in orbits that take them over the poles of the sun.

That is what they say they have now confirmed, using computer simulations to rewind the cosmic clock back to the beginning of the solar system.

“We chose them because they were unusual in the first place,” Dr. Namouni said by email, explaining that their orbits took them far out of the ecliptic, the tilted plane along which the planets travel around the sun. “They’re known as high-inclination asteroids,” he explained. Astronomers believe that the sun and other stars were born when a dense cloud of proto-stellar material, gas and dust, collapsed some 4.5 billion years ago, perhaps as a result of a nearby supernova explosion.

When the sun formed it was already accompanied by a swirl of gas and dust orbiting in that ecliptic plane that the planets and most asteroids would eventually occupy.

But the 19 asteroids that the astronomers tracked were not part of that disc back then. They were in fact orbiting in a plane perpendicular to the sun’s system, and in orbits that took them much farther from the sun than the other objects that would become our planets.

They probably belonged to other stars, each of which would have been born with its own retinue of worldly crumbs of planets and asteroids and comets.

In the close quarters of the birth cluster, however, it was easy for stars to steal wandering asteroids from one another. Any more details of this cosmic history are lost for now.

“We can’t say they were snatched from a single star,” Dr. Namouni said. “They could have been snatched from different stars at different times.”

He said their next research goal is see if they can distinguish families in the asteroids, indicating that some of them were captured in the same event.

We were once all brothers in the same nebula, as the late astronomer and cosmologist [Allan Sandage](#) of Carnegie Observatories liked to say. Some of our cousins got to come home and live with us.