

Researcher describes how extraterrestrial civilizations could colonize the galaxy even if they don't have starships

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Astronomers have searched for extraterrestrial civilizations in planetary systems for sixty years, to no avail. In the paper published by *International Journal of Astrobiology*, Cambridge University Press, and titled "Migrating extraterrestrial civilizations and interstellar colonization: Implications for SETI and SETA," Irina K. Romanovskaya proposes that the search for extraterrestrial intelligence (SETI) may have

more chances to become successful when including the search for migrating extraterrestrial civilizations.

For example, extraterrestrial civilizations may leave their home planetary systems when they face existential threats. One of the ways to do so is to ride free-floating planets. Free-floating planets can offer space and resources, as well as protection from space radiation, for very large populations embarking on interstellar travel. It is most likely technically impossible that huge starships, also called world ships, can offer the same.

Extraterrestrial civilizations may also use free-floating planets to send biological or post-biological species to survey interstellar space, stars, and planetary systems, or to establish their colonies in several planetary systems to preserve and expand their civilizations even before they face existential threats at home.

In her paper, Romanovskaya discusses how extraterrestrial civilizations may hitch a ride on free-floating planets that are trespassing through their home planetary systems, or they may ride planet-like objects ejected from their planetary systems by dying host stars. Alternatively, extraterrestrial civilizations may use propulsion systems and gravity assist events to convert Sedna-type Oort-cloud objects of their planetary systems into free-floating planets and ride them among the stars.

Romanovskaya points out that with little starlight reaching free-floating planets, extraterrestrials could use controlled nuclear fusion as the source of energy, and they could inhabit subsurface habitats and oceans of the free-floating planets to be protected from space radiation. That would also prepare them for colonization of oceans in planetary systems.

Because free-floating planets cannot sustain their oceans forever and more exploration opportunities exist in planetary systems, extraterrestrial

[civilizations](#) would ride free-floating planets to reach and colonize planets orbiting stars. Upon their close approach to planetary systems, the extraterrestrials could transfer from their free-floating planets to selected Oort-cloud objects of the planetary systems that would carry them inwards and towards the major planets of the planetary systems. Or, the planetary systems could capture such free-floating planets. Then, the extraterrestrials would colonize the planetary systems.

To discover extraterrestrials riding free-floating planets, Romanovskaya proposes to search for certain technosignatures—electromagnetic emissions produced by extraterrestrial technologies on the free-floating planets and in their vicinity—and in some cases, for matching signs of terraforming in a few planetary systems potentially indicating that one civilization riding free-floating planets could colonize them.

If astronomers detect technosignatures produced on a free-floating planet without detecting the free-floating planet itself, they could misinterpret the origin of the technosignatures. For example, on August 15, 1977, astronomers detected the famous Wow! signal in the constellation Sagittarius. Forty-five years later, scientists continue hypothesizing why the signal was detected only once.

According to Romanovskaya, if extraterrestrials sent the Wow! signal from an undetected free-floating planet and the planet moved away from the line of observations, then the Wow! signal would not be detected along that line of observations again. Thus, astronomers should search for free-floating planets along the lines of observations of unusual and potentially artificial signals coming from space.

Romanovskaya proposes there may be a very small chance that over the last few billions of years, free-floating planets with extraterrestrial intelligent species may have traveled in our stellar neighborhood, and she discusses different ways to look for their artifacts in the solar system and

in the nearby planetary systems.

At present, somewhere in space, hundreds of light years away from Earth or closer than that, migrating intelligent biological species or post-biological beings with artificial intelligence may be riding free-floating planets and looking for a new home. Romanovskaya recommends that the search for such space travelers—the search for migrating [extraterrestrial intelligence](#) (SMETI)—should be part of our search for intelligent life in the universe.

More information: Irina K. Romanovskaya, Migrating extraterrestrial civilizations and interstellar colonization: implications for SETI and SETA, *International Journal of Astrobiology* (2022). [DOI: 10.1017/S1473550422000143](#)

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