Scientists may detect signs of extraterrestrial life in the next 5 to 10 years

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An artistic impression of one of the exoplanets in the study, K2-18b. The image shows the planet, its host star, and an accompanying planet in this system. K2-18b is now the only gas dwarf exoplanet known to host both water and temperatures that could support life. Credit: ESA / Hubble, M. Kornmesser, CC BY 4.0

Research shows that a new telescope could detect a potential signature of life on other planets in as little as 60 hours.

"What really surprised me about the results is that we may realistically

find signs of life on other planets in the next 5 to 10 years," said Caprice Phillips, a graduate student at The Ohio State University, who will share preliminary findings at a press conference during the 2021 APS April Meeting.

Gas dwarf planets have the potential to foster life. But because none of these super-Earths or mini-Neptunes exist within our solar system, scientists struggle to determine whether their atmospheres contain ammonia and other potential signs of living things.

Phillips calculated that when the James Webb Space Telescope launches this October, it could feasibly detect ammonia around six gas dwarf planets after just a few orbits.

She and her team modeled how JWST instruments would respond to varying clouds and atmospheric conditions, then produced a ranked list of where the telescope should search for life.

"Humankind has contemplated the questions, 'Are we alone? What is life? Is life elsewhere similar to us?'" said Phillips. "My research suggests that for the first time, we have the scientific knowledge and technological capabilities to realistically begin to find the answers to these questions."

More information: meetings.aps.org/Meeting/APR21/Session/K05.2

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