

New Study Reveals NASA's Roman Could Find 400 Earth-Mass Rogue Planets



New research by scientists from Goddard and Japan's Osaka University suggests that rogue planets – worlds that drift through space untethered to a star – far outnumber planets that orbit stars. The results imply that NASA's Nancy Grace Roman Space Telescope, set to launch by May 2027, could find a staggering 400 Earth-mass rogue worlds. The study also identified one such candidate.

The team's findings stem from a nine-year survey called MOA (Microlensing Observations in Astrophysics), conducted at the Mount John University Observatory in New Zealand. Microlensing events occur when an object such as a star or planet comes into near-perfect alignment with an unrelated background star from our vantage point.

Because anything with mass warps the fabric of space-time, light from the distant star bends around the nearer object as it passes close by. The nearer object acts as a natural lens, creating a brief spike in the brightness of the background star's light that gives astronomers clues about the intervening object that they can't get any other way.

The Roman Space Telescope is managed by Goddard.



This artist's concept shows an ice-encrusted, Earth-mass rogue planet drifting through space alone. Credit: NASA's Goddard Space Flight Center

Paper (accepted to The Astronomical Journal):
<https://arxiv.org/pdf/2303.08280.pdf>