

Evidence of Planet Nine diminishing as researchers find no evidence of clustering

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An international team of researchers has found no evidence of trans-Neptunian object clustering as part of an effort to refute the idea of the existence of Planet Nine. The group has written a paper describing their findings and have uploaded it to the arXiv preprint server.

Back in 2016, a team of researchers at the California Institute of Technology announced that they had found evidence of another planet at

the far edges of our solar system. They named it Planet Nine. They claimed that their observation of unique clustering of trans-Neptunian objects (mini [planets](#)) beyond Neptune proved that another large planet was exerting [gravitational forces](#) on the objects. They further suggested that the possibility of the clustering they observed being a coincidence was just 0.007%. They even went so far as to calculate the possible size of the planet. In this new effort, the researchers claim that the unique clustering observed by the team at CIT was due to [natural bias](#) inherent in the way that NTOs are observed. Because they are so far away, they can only be seen when they are close to the sun. To catch them with a [telescope](#), astronomers have to focus on one certain part of the sky on a certain day, which introduces bias.

To show that this bias could explain the observations made by the team at CIT, the researchers obtained data from multiple telescopes in different parts of the world that had been focused on 14 ETOs—none of which had been included in the study done by CIT. They then analyzed the data associated with the elliptical paths of the ETOs as they made their way around the sun and built simulations to show that they were not representative of clusters of ETOs being impacted by the gravitational force of a large unknown planet.

The researchers suggest that the clustering observed by the team at CIT appeared to show a large planetary influence because the ETOs they saw just happened to be in the place where the team pointed their telescopes. They acknowledge that their work does not completely rule out the possibility of the existence of Planet Nine, but suggest it does make its existence much less likely.

More information: No Evidence for Orbital Clustering in the Extreme Trans-Neptunian Objects, arXiv:2102.05601 [astro-ph.EP]
arxiv.org/abs/2102.05601

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