

Which paper proposes a novel method that could be utilized to attract the attention of, and ultimately communicate with, extraterrestrial intelligence?

Paper 4 – Earth as an Exoplanet: Investigating the Effects of Cloud Variability on the Direct-Imaging of Atmospheres

Summary: This study explores how Earth's atmospheric features—especially cloud cover—would appear if viewed from distant space, using direct imaging techniques. Its primary aim is to improve our ability to detect habitable exoplanets by analyzing Earth-like signals. However, it does not suggest any method for communication with extraterrestrial intelligence (ETI) or offer strategies for signaling alien civilizations.

Paper 3 – Parallax Effect in Microlensing Events Due to Free-Floating Planets

Summary: Focused on refining our understanding of gravitational microlensing caused by rogue planets, this paper introduces how parallax can be used to better estimate the mass of such objects. While it provides valuable insights for detecting isolated planetary bodies, it makes no reference to ETI detection or communication strategies.

Paper 2 – Searching for GEMS: Confirmation of TOI-5573 b

Summary: This paper confirms the existence of TOI-5573 b, a Saturn-sized planet, through radial velocity and transit observations. It concentrates on the characteristics and orbital properties of exoplanets. There is no discussion on methods for signaling or interacting with extraterrestrial intelligence.

Paper 1 – Transit Light-Curve Signatures of Artificial Objects (Arnold, 2005)

Summary: This is the only paper among the four that introduces an original idea for contacting ETI. Arnold proposes that an advanced civilization could construct massive artificial structures—such as geometric shapes or multi-panel configurations—in orbit around a star. These would create unusual transit light curves observable from Earth, easily distinguishable from natural planetary transits. Patterns (like prime-numbered sequences) could act as intentional signals, serving as a passive yet detectable means of attracting ETI. This concept differs from conventional radio-based SETI by leveraging normal exoplanet surveys and thus offering broad observational coverage.