

# Detecting artificial satellites around exoplanets

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**Abstract.** The search for extrasolar planets (EXOPLANETS) is one of the most rapidly expanding fields in astrophysics. Thanks to recent space-based efforts the number of detected planets in extrasolar stellar systems has increased dramatically, and more than 800 objects have been identified as of today, see e.g. <http://exoplanet.eu/catalog/>. With candidates identified in the so-called habitable zone (HZ)<sup>1</sup> the question of extraterrestrial life becomes very actual. Here we discuss ideas that could lead to infer the presence (or the past existence) of an extraterrestrial civilization by the detection of artifacts in orbit around the host planet.

This is an attempt to write an **Authorea Open Science** article. The author of the seed abstract (seed author) welcomes any collaborator willing to give comments / input on the topic discussed. For the time being people who want to be added as collaborators need to send an email request to the seed author (matteo at kitp.ucsb.edu). As the effort progress, the different contributions are logged in and stored in the Authorea version system, so that in the final version of the paper the contributions from the various authors can be viewed in detail and eventually a ranked author list produced. The final article will be published in Authorea and posted on AstroPh.

## REFERENCES

## I. TOPICS

- 1) Geometry
- 2) Solar panels (Need somebody expert in the properties of **materials** usually adopted to build solar panels)
- 3) Detection in polarized light (Need an **expert on polarization**)
- 4) Transit signature (Need an **expert on transit light curves**)
- 5) How to distinguish moons from artificial satellites? (adopt combination of polarization and transit signature)
- 6) Spectra?
- 7) Test: signal from International Space Station as seen from 10 pc
- 8) Literature. Need somebody from the field (Exoplanets) that can point to the **relevant literature**

## II. SOME LITERATURE

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<sup>1</sup>The theoretical band around a star where a planet could orbit and host liquid water