

Research Proposal

The Philosophy of Space Exploration and Exoplanet Science

My research idea is to look at the phenomena of Exoplanet Science and the search for potentially habitable worlds and possible life forms from a philosophical point of view. Over the course of my project, I hope to discuss the ethical implementations of space exploration and contamination by investigating past, current and future missions, such as CHEOPS or TESS. Furthermore, the practical possibilities of potential human colonisation of other planets and the idea of Terraforming or ISRU are highly interesting and raise theories like the Principles of Mediocrity or Anthropic Bias and complex philosophical questions: Are we alone? What is our place within the universe? Finding a meaning in human life within the scope of the cosmos has troubled philosophers and scientists alike for centuries. Nevertheless, there is little existing research that combines the fields of Astrobiology and Philosophy, which is what, I believe, makes my project rather distinct. In the context of newest astronomical findings in terms of numbers, data and frequency of detecting exoplanets and scientific proposals, such as the Drake Equation, I would like to think about the likelihood of discovering an Earth-like planet. To this, I might also add the notion of public trust that is or is not placed into scientist and politicians when it comes to this topic and the influence that media have on it. As an outcome of my project, I am not only interested in presenting and visualising my research and gathered conclusions, but would also like to look at procedures and space laws that govern planet or life detection missions and suggest alterations and possible solutions. For example, the SETI institute (Search for Extraterrestrial Intelligence) has recently developed a series of protocols for the eventuality of detecting life elsewhere. There are also space laws and international treaties, most of which have been developed before the turn of the millennium, which can be regarded as partly outdated. Discussing all these issues from a philosophical and ethical perspective therefore seems important, if not even necessary, in the context of the high topicality of Exoplanet Science and the interdisciplinary aspect of Astrobiology. The field offers a wide range of ideal research topics, and by looking at certain phenomena, problems and possible answers, I hope to develop a philosophical and anthropological understanding of the consequences that modern science can bring. My plan is to first gather the necessary scientific data, move on to research the relevant philosophical and anthropological works and continue with discussing my findings and thinking about the ethics of space exploration and missions. I would then focus on the prospects of Exoplanet Science and eventually summarise and visualise my research. Professor Hawley has also arranged for me to be able to attend events at the St. Andrews Centre for Exoplanet Science for the purpose of my research.