
Uncertain Worlds: Rethinking the Drake Equation and Earth's Uniqueness (DRAKE)

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Faculty: PŘF

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The Drake Equation, formulated in 1961, remains one of the most well-known attempts to estimate the number of present-day communicating civilizations in our galaxy. Yet, its predictions can vary dramatically depending on how the terms are defined or combined, as well as on the expertise and personal traits of those making the estimates. The DRAKE project addresses this gap through an online questionnaire study, investigating how these factors influence the outcomes and using the findings to reflect on the uniqueness and fragility of life on Earth. By linking astronomical inquiry with the concept of planetary habitability, the project also underscores pressing environmental challenges, drawing parallels between the rare conditions for life and the need for sustainable stewardship of our own planet.

In collaboration with partners from the University of Copenhagen and Sorbonne University, the project integrates perspectives from biology, astronomy, philosophy, and science education. It combines research with public engagement, organizing a workshop in Prague, bilateral visits, and participation in international conferences such as EANA 2025. The study's results will inform a dedicated educational toolkit—comprising talks, teaching materials, presentations, and interactive activities—designed to foster interdisciplinary thinking and critical reflection on humanity's place in the cosmos. Public outreach will be supported through online releases of workshop recordings and activities timed with events like World Space Week.

Expected outputs include at least one peer-reviewed publication in an impact-factor journal, presentations at international conferences, and the release of the educational toolkit for use across Europe. By exploring how scientific framing and evaluator bias affect probability estimates of extraterrestrial life, the project will refine a widely known scientific concept while advancing public understanding of sustainability and resilience. In doing so, DRAKE not only strengthens interdisciplinary cooperation between European institutions but also equips the next generation with the tools to think critically about the future of life—both beyond Earth and on our own fragile planet.