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The Next Steps (A4)
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WHY WE'LL NEVER RECEIVE ENCYCLOPAEDIA GALACTICA

Abstract

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The scientific Search for Extraterrestrial Intelligence (SETI) has long held that free-space optical communication (OSETI) is more likely than microwave communication (MSETI) to support high information content over interstellar distances. Over the past two years, the Interstellar Beacon initiative has sought to test this assumption, through both detailed link analysis and direct free-space infrared laser experimentation. To our disappointment, we find that both cosmic and quantum limitations raise serious doubts about the viability of information-rich optical interstellar transmissions. If we cannot expect to upload Encyclopaedia Terrestria to our cosmic companions, might that cast into doubt hopes for Earth's eventual reception of Encyclopaedia Galactica, the Holy Grail of SETI?

Keywords:

Search for Extraterrestrial Intelligence, SETI, Messaging to Extraterrestrial Intelligence, METI, Optical SETI, OSETI, Interstellar Beacon, interstellar dispersion, data rate, quantum limits, information theory, Shannon's Law, link analysis.