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The Next Steps (A4)
SETI 1: SETI Science and Technology (1)

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UPPER BOUNDS ON TECHNOEMISSION RATES FROM 60 YEARS OF SILENCE

Abstract

The lack of detection to date of electromagnetic technosignatures implies either that we have been unable to detect them due to incomplete sampling of the search space or that we *cannot* detect them because the Earth has been located during the entire history of SETi in a region of space not covered by artificial extraterrestrial emissions. Starting from the latter hypothesis, and assuming that technoemissions are generated in our galaxy at a constant rate Γ , we derive probabilistic upper bounds on Γ . In the case of isotropic emissions, we find a 5% probability that there are more than one to five emissions per century that are generated across the entire Milky Way. We show that higher emission rates can only be derived under the assumption that a significant fraction of all technoemissions are anisotropic and randomly oriented narrow beams.