

Strategies in the Search for Extraterrestrials

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While modern SETI experiments are often highly sensitive, reaching detection limits of 10^{-25} watts/m²-Hz in the radio, and $\sim 10^2$ photoelectrons in the optical, the enormous interstellar distances imply that if extraterrestrial societies are using isotropic or broad-beamed transmitters, the power requirements for their emissions are enormous. Indeed, isotropic transmissions to the entire Galaxy, sufficiently intense to be detectable by our current searches, would consume power comparable to the stellar insolation of an Earth-size planet.

In this talk we consider how knowledge can be traded for power, and how, and to what degree, astronomical accuracy can reduce the energy costs of a comprehensive transmission program by putative extraterrestrials. We also consider why there is reason to think that if SETI is ever going to pick up a signal from the cosmos, that is likely to happen in the next two dozen years.