

52nd IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –  
The Next Steps (A4)  
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INTELLIGENCE (SETI) – The Next Steps (IP)

Author: Dr. Paolo Musso  
InCosmiCon Research Center, Italy, paolo.musso@uninsubria.it

EXTRATERRESTRIAL FOCAL SETI AND ITS IMPLICATIONS FOR TERRESTRIAL SETI

**Abstract**

The main problem of SETI is the low probability of receiving, at present or in the next future, an intentional message from an alien civilization: such a message, indeed, would be very easy to detect, since it would be made just for this, while unintentional messages would be very likely “invisible” to our present technology. But sending an intentional message towards the Earth would make sense to ETs only if they knew that on Earth there is a civilization capable to receive it, which, in turn, could happen only if they had already received some kind of signal from us. Unfortunately, at present our radio and television transmissions have reached only planets very close to us, which are very unlikely to host intelligent life. But what if an advanced civilization used a star as a gravitational lens to enormously magnify the power of its optical telescopes? This is not science fiction: NASA is currently planning by 2030 the first optical terrestrial mission to the focus of the gravitational lens of the Sun. This means that any advanced civilization should have an entire set of telescopes exploiting the gravitational lens of its star or a nearby one. If so, ETs could have discovered the existence of our civilization long before it became able to send radio signals towards the stars. In this paper we try to calculate at what distance it would be possible to see the signs of the presence of intelligent life on another planet by using telescopes of different diameters and stars of different masses. Then we discuss the impact it could have on the probability of Earth being the target of an intentional extraterrestrial message.