

47th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
The Next Steps (A4)
Interactive Presentations - 47th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL
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SETI SEARCH WITH GAS CORE NUCLEAR PROPELLED SPACE PROBES

Abstract

Search for Extraterrestrial Intelligence has been part of Le Reve D'etoiles or Dream of Stars. In fact since the dawn of time, humans have been looking at the twinkling stars and yearned to go there and find out about the universe. Of course, it can be said that the search for extraterrestrial intelligence or SETI is a natural extension of this curiosity as it is humankind's natural inclination to wonder if there is any other life besides life on Earth. Naturally, there have been many speculations and a lot of unconfirmed studies and reports about the possibility of extraterrestrial life; but there has not been any confirmed finding proving the existence of life outside of Earth. One way to do this would be to send deep space probes outside of the Heliopause to search for potential signs of extraterrestrial life. While current methods of using radio astronomy to try to sift through various radio signals being picked up may also work, it seems it is also prudent to actually search using deep space probes. However the problem is that if we use Voyager 2 technology, it will take decades just to exit the solar system and the power sources may not be sufficient for sending and receiving signals. Thus, it is important to use a technology that gives abundant power to the deep space probe for all of its SETI instrumentation and navigational instrumentation and it also needs to have a high specific impulse to travel to distances much further than the Heliopause and as deep as possible into the interstellar void. With the existing early 21st century technology, it is possible to use a gas core nuclear fission reactor to use both as a propulsion technology as well as a way to provide abundant power to the probe's systems. The probe would be able to reach the Heliopause in less than a year as it will not use any gravity assist to travel within the solar system and with high internal chamber temperatures it can reach very high speeds which is not possible with chemical propulsion. Since it will be an unmanned probe the radiation won't be a problem and once clear of the Heliopause it can easily start sending powerful signals as well as receive them for SETI research and in addition it will also accumulate important research data which can be used to understand the physics of our universe.