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RADIO BRIDGES BY GRAVITATIONAL LENSING FROM ALPHA CEN A OUTWARD IN ALL  
DIRECTIONS

**Abstract**

The Solar Gravitational Lens (SGL) is a gift of nature that humanity is now willing to exploit. Though SGL physics started with Einstein's 1936 paper on the gravitational lensing provided by every star, it was not until 1979 that the idea of a space mission reaching the Sun's nearest focal sphere at 550 Astronomical Units (AU) was put forward by Von Eshleman. By 1998 the senior author of this paper (CM) had published his first technical book on the FOCAL (Fast Outgoing Cyclopean Astronomical Lens) space mission: "The Sun as a Gravitational Lens: Proposed Space Missions" and by 2000 he had submitted a relevant formal proposal to ESA. He presented his ideas at NASA-JPL for the first time on August 18, 1999. In 2020 NASA awarded a \$2million grant to JPL to prepare for the first FOCAL space mission.

But Radio Bridges between the Sun and any nearby star may also be conceived. The idea is that, if humanity will be able to send unmanned space probes to the nearest stars in the future, each of these probes could be placed behind the star of arrival and along the star-to-Sun line, thus allowing for two gravitational lenses to work together. That will result in a permanent communication system having greatly reduced powers to keep the radio link between the two stellar systems.

Now please assume that the first Interstellar mission between the Sun and the Alpha Cen system will have been accomplished in a few centuries from now. Then what? In other words, after "colonizing" the full three-star Alpha Cen system, where will be directed the next interstellar expansion of humankind? In this paper we answer this question by finding the next 100 Radio Bridges between Alpha Cen A and each of the 100 stars in the Galaxy next to Alpha Cen A. Of course, this work is for the centuries to come. But knowing which natural radio bridge between Alpha Cen A and each of the nearest 100 stars to it is more convenient, will open up the road map for the human expansion into the Galaxy.