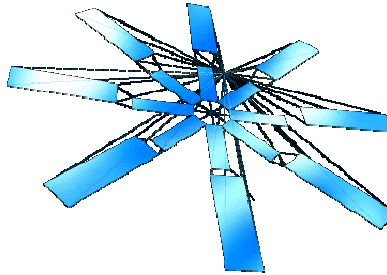




NEW YORK CITY COLLEGE OF TECHNOLOGY
Physics Department
Seminar in Theoretical Physics

THE SUN AS A GRAVITATIONAL LENS: PROPOSED SPACE MISSIONS



Presented by:

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The nearest stellar system, Alpha Centauri, is located about 4.40 light-years away. This amounts to 278,261 AU. But at only 550 AU, or, more generally, at only about 1,000 AU, the focus of the gravity lens of the Sun is found, which is then 278 times closer than our nearest interstellar target. In other words, assuming equal engineering problems, the trip to the Sun's focus takes 278 times less than the trip to the nearest stellar target. This makes the Sun's gravity focus a reasonable target for our probes to reach within this century. But there is more. Before we send any probe towards even the nearest stellar system, we'll be in the need to have a good radio map of that stellar system, as well as of everything else that may be on the way. Thus, we need a huge radio magnification of these objects, and nothing is better than the huge magnification provided by the gravitational lens of the Sun. In conclusion, sending a first probe to 1,000 AU in the direction opposite to the target stellar system clearly must be done before any interstellar flight to that stellar system is even designed. To the stars, by steps. Ad astra, incrementis!