

## The One Hectare Telescope For SETI

John Dreher; SETI Institute

UC Berkeley and the SETI Institute have begun a project to build a large synthetic-aperture receiving array for use in radio astronomy and SETI. It will operate in the 1-10 GHz range and be constructed of 500 to 1000 small parabolic elements providing a total collecting area of 1 hectare (2.5 acres). The One Hectare Telescope (1hT) will be one of the largest in the world, and the first built specifically to do SETI.

Using detectors similar to those employed for Project Phoenix, the 1hT could achieve a detection threshold of  $4 \times 10^{-26} \text{ W m}^{-2}$  in a 400 s integration. For coherent detection with a bandwidth of 0.01 Hz, the threshold would drop to  $5 \times 10^{-27} \text{ W m}^{-2}$ , corresponding to an EIRP of 60 GW at 100 ly range. The 1hT will provide multiple beams (within the primary beam of the elements). Using three beams, a survey of the nearest 100,000 solar-type stars, with three looks at each frequency in the 1-3 GHz range, could be accomplished in 6 years. Radio astronomy observations could be done simultaneously with such a search.