Project Phoenix And Beyond

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Project Phoenix, descendant of the NASA targeted search, performs a systematic, high sensitivity, dual-polarization, search that covers 1 to 3 GHz and concentrates on nearby sun-like stars. It looks primarily for drifting CW signals at high resolution. Its most notable successes have been its high sensitivity, and very good immunity to interference, brought about through use of multiple site confirmations and an RFI database.

Searches for sparsely spaced pulses are also conducted over a set of lengths, ranging in approximately octave steps from 1 to 1/32 second, but these do not systematically cover the frequency range of the CW effort. The Phoenix project's duration has been extended, distributing the planned observations over a longer period, because of the generally high demand for radio telescope time.

If microwave SETI is to succeed as a long term enterprise, it must search many stars with high efficiency, evolving to take advantage of new computing and antenna resources. The next generation of SETI Institute targeted searches will use modular hardware, based on commercial systems rather than custom designs. Telescopes with multiple beams will be employed to allow faster searching of the sky in collaboration with other radio astronomy. Spectrometers with greater bandwidth will fully utilize new wide band feed designs.

Interference rejection may be enhanced by direct suppression of strong undesired signals. Vast, cheap computing resources will allow efficient tradeoff of bandwidth, number of beams, and number of processing elements used to assemble increased collecting area. When computing resources become even more available, the complement to the targeted approach, a systematic, all-sky search for low duty cycle pulses or transient events, may be feasible.