

SIRTF-the Space InfraRed Telescope Facility

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The scientific promise of a cryogenically-cooled telescope instrumented with modern infrared detector arrays is so great that SIRTF was judged by the Bahcall Committee to be the highest priority major new mission for US astronomy in the 1990's. SIRTF'S design is being driven by four scientific programs: the study of redshifted starlight from very distant galaxies; the search for and characterization of brown dwarfs; ultraluminous infrared galaxies and active galactic nuclei; and protoplanetary and planetary debris disks. These four programs are discussed in greater detail in the accompanying posters. An additional poster will serve as a focal point for discussion of the community's participation and role in SIRTF. This poster summarizes the facility and instruments.

In recent months, SIRTF has been restructured to be consistent with the strategic plan of NASA's Office of Space Sciences, which calls for missions with total development costs of under \$500M, while maintaining the capability to carry out the above programs. Key requirements derived from these programs are an 85 cm aperture, 2" image quality at $3.5\mu\text{m}$, and a 2.5 year cryogenic lifetime. SIRTF'S sensitivity goals require a 5.5K telescope and 1.5K focal plane temperature. The current design concept calls for a single cryogen 450 liter liquid helium tank. Details of the configuration are being evaluated, and are consistent with launch on a Delta rocket into heliocentric orbit. A four year development phase is currently envisioned.

The instrument complement will include five focal plane array types: InSb, Si:As and Si:Sb IBC'S, and stressed and unstressed Ge:Ga photoconductors, in formats of up to 256 x 256 pixels. These will provide imaging and spectroscopy over the range 3 to $180\mu\text{m}$.

NASA's Astrophysics Division is currently planning for a 1997 start of SIRTF'S definition phase.

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