

V33b Development of an Infrared Camera for the Nishi-Harima Astronomical Observatory

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Two years ago we begun the project to develop a Near Infrared CCD Camera for 60 cm telescope of the Nishi-Harima Astronomical Observatory (a Classical Cassegrain telescope). This project is supported by Hyogo-ken Nishi-Harima Astronomical Observatory, Kagoshima University, National Astronomical Observatory of Japan and the University of Tokyo. The mounted CCD sensor is a 512×512 - element platinum silicide (PtSi) Schottky-barrier infrared image sensor, made by Mitsubishi Electric Corporation and is proved successfully for astronomical purposes by M. Ueno. To simplify the maintenance while running of the IR Camera, we used two independent Stirling cycle refrigerators for cooling the dewar. It is the first IR Camera cooled by the Stirling system. Also these refrigerators are going to be used on the Japanese IR satellite IRIS. The cooling capacity of each refrigerator is 1 watt at 77 K and 0 watt at 50 K. Since the capacity of a single refrigerator is not enough for the dewar, we used two independent refrigerators, one for refrigerating the cold plate and the other one for the thermal radiation shield. The whole system will work with less maintenance, no need of refrigerant, and it is more portable comparing with common use IR cameras. We successfully had some pictures with the camera mounted on the Nishi-Harima observatory telescope, and also on the 32 cm Newtonian telescope of the University of Tokyo in Komaba.