

## Development of the InSb array sensor drive system for infrared observations

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Jupiter is a biggest planet in the solar system. There are the aurora phenomena in UV, Visible and IR range that reflected magnetosphere activity. Especially, in  $H_2$   $H_3^+$  NIR aurora, ground based observation is possible because earth atmosphere transmissivity is high. So  $H_2$   $H_3^+$  aurora are suitable for long-term observation.

However, the number of the devices is limited by difficulty of the development of the infrared measurement, and it is difficult to observe long-term continuation from a problem to large-sized telescope machine time. The development of the infrared imaging camera is carried out in Takahashi (2005) so far in Tohoku University, and the development of the infrared echelle spectrum device is carried out in Uno (2009).

However, the problem that a count level of the output image did not change into even if I changed an exposure occurred because it was defective in infrared sensor (InSb sensor) drive system. Radical new development InSb sensor drive used for these devices was started in the Kobuna (2008). It is the joint development with the Tohoku University astronomy specialty Professor Takashi Ichikawa classroom, and the design of the analog circuit is performed in an astronomy classroom, and this development examined digital circuit pro-development and synthesis movement in Kobuna (2008),but does not reach the completion.

It is expected what is utilized as drive system of the infrared imaging device which I produced in Takahashi (2005) and the infrared echelle spectroscope that development was carried out in Uno (2009). The InSb sensor drive system can contribute to continuation observation for a long term of the planetary atmosphere including Jovian IR aurora.