

## Observational evidence for the asymmetrical dust clouds around the peculiar SN impostor in the NGC 300.

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Development of the observational instruments have allowed us to discover such a interesting astronomical events as we have never seen. Among them, the supernova (SN) impostor, which is an optical transient with the maximum luminosity intermediate between that of classical nova and of supernova, is one of the most interesting objects. Although several studies have been made on SN impostors, the nature of them still remains to be discovered.

On 2008 May 14, an interesting optical transient was discovered around the nearby galaxy NGC 300 by B. Monard[1] (hereafter NGC300OT). NGC300OT is different from other SN impostors in that the progenitor of it was deeply dust-enshrouded[2] and it possibly produced a large amount of dust in its ejecta by comparing to its “twin” of SN 2008S[3]. We will present the result of near-infrared (NIR) multi-epoch observation of NGC300OT on day 398 and 582 with the Infrared Camera (IRC) on board AKARI. NIR spectra indicated that the NIR flux was mainly due to the thermal emission of hot dust, possibly newly-formed dust in the ejecta. Assuming the isothermal dust cloud, we derived the temperature and the optical depth of the dust cloud by SED fits. Although the result showed that the dust cloud should be highly optically thick at both epochs, no extinction in visible and UV had been observed in the former studies. In order to resolve the discrepancy, we propose the asymmetric distribution of the dust cloud. The asymmetric dust cloud also had been proposed by the former studies[4][5]. Our result strongly supports their conclusion in terms of NIR observation.

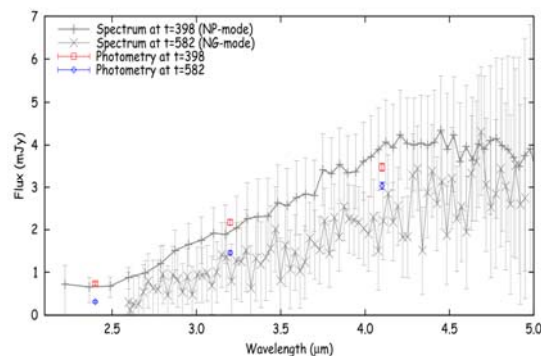


Figure 1: The NIR spectra and the results of photometry of NGC300OT

### References

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