

SN dust shell surrounding a young IR galaxy

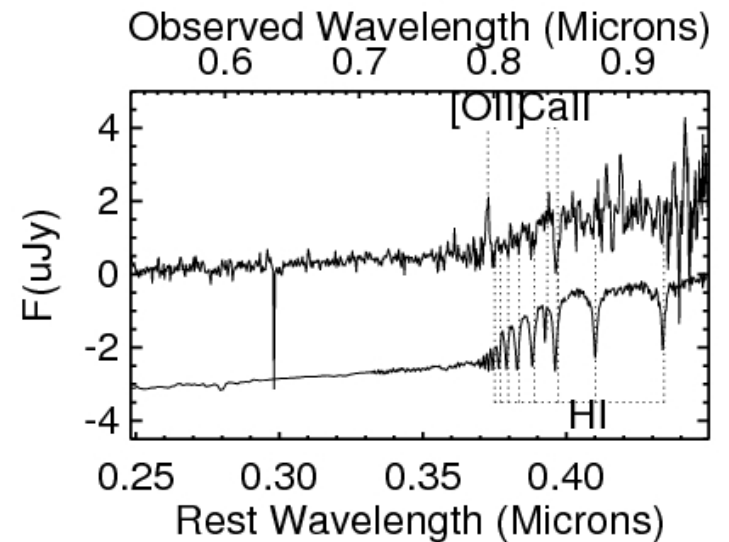
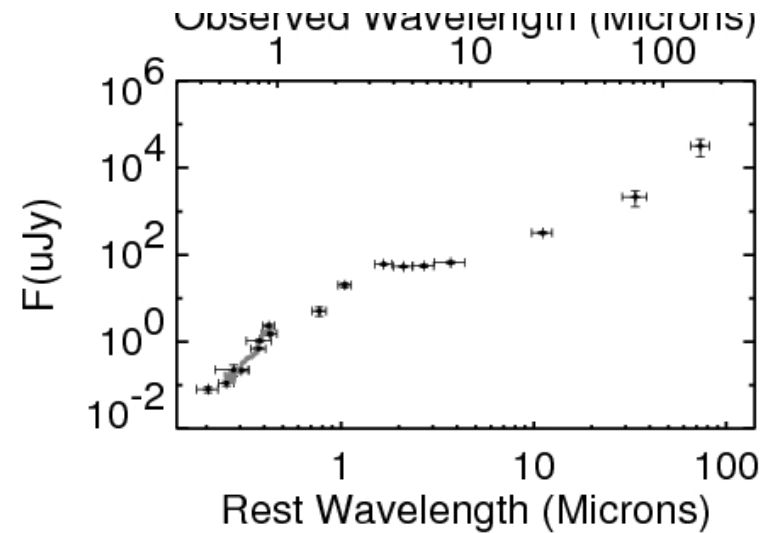
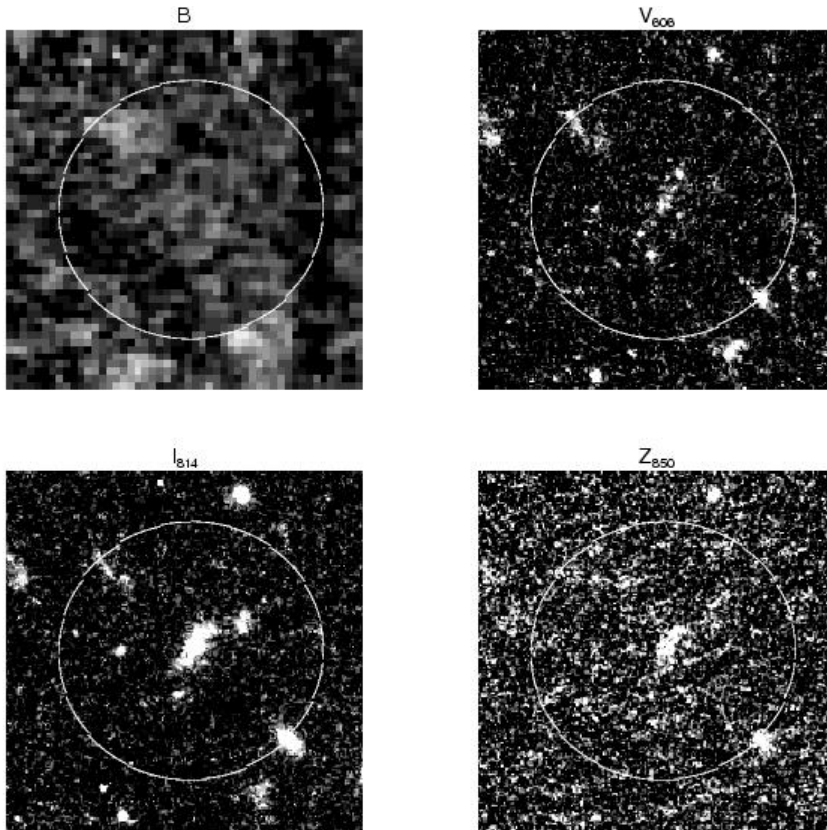
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SST J1604+4303

Kawara+09

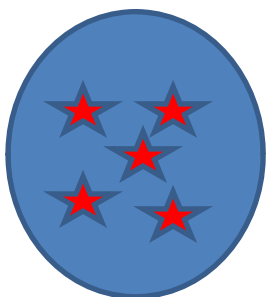
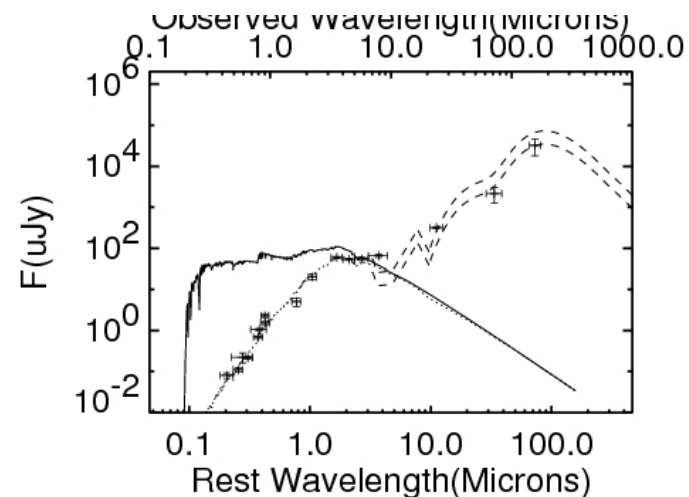
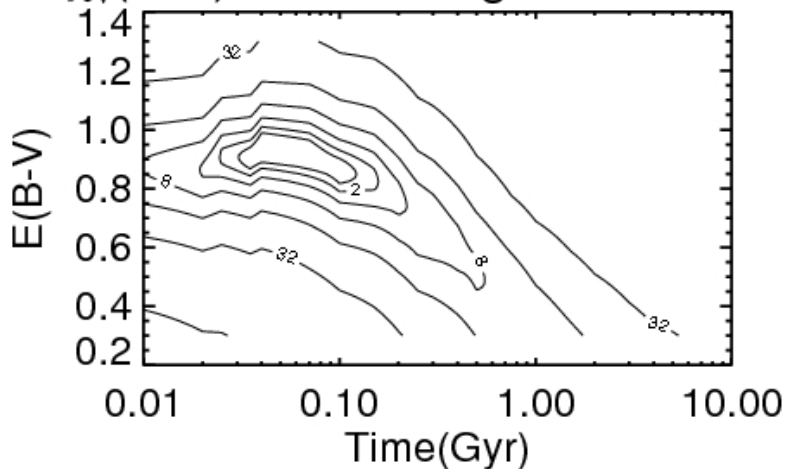


Gemini GMOS (Subaru exchange program)
spectrum shows
a young ULIRG with $t < 500$ Myr

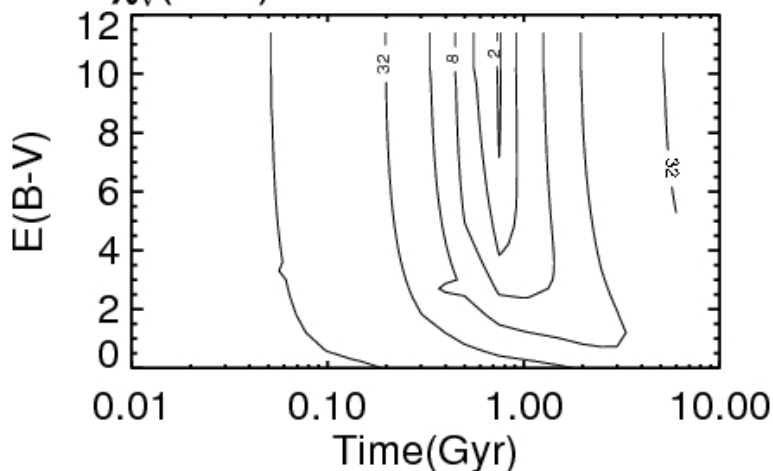
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$\chi^2_{\nu}(\text{min}) = 5.2$: foreground screer



$\chi^2_{\nu}(\text{min}) = 7.2$: internal dust



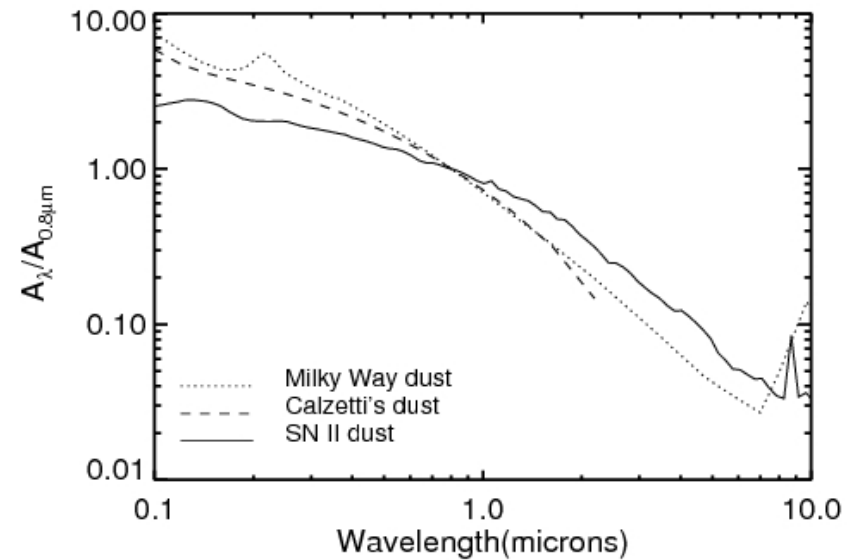
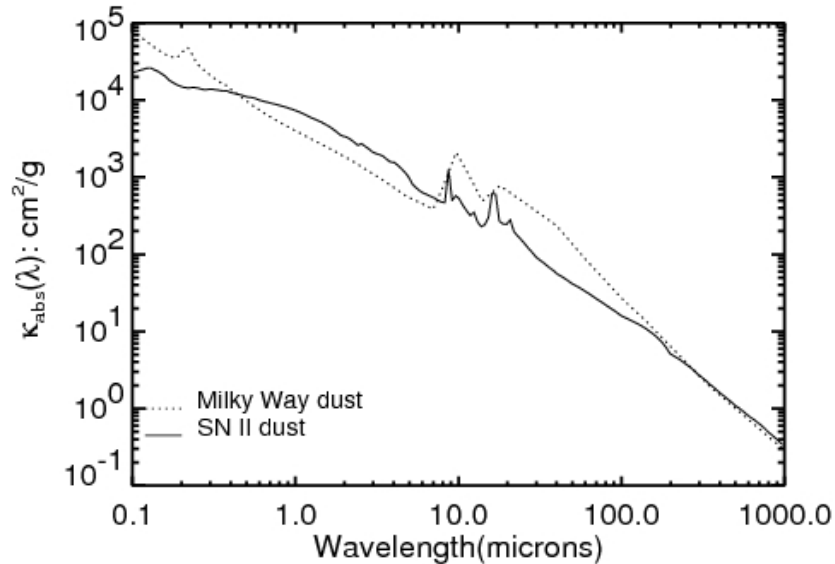
Calzetti extinction curve
Synthesized Stellar population (BC03)
Age, extinction, flux-scale

Young galaxy $A(0.3\mu\text{m}) = 5.5$

Foreground dust screen

**→giantic dust shell
surrounding the galaxy**

Supernova-condensed dust



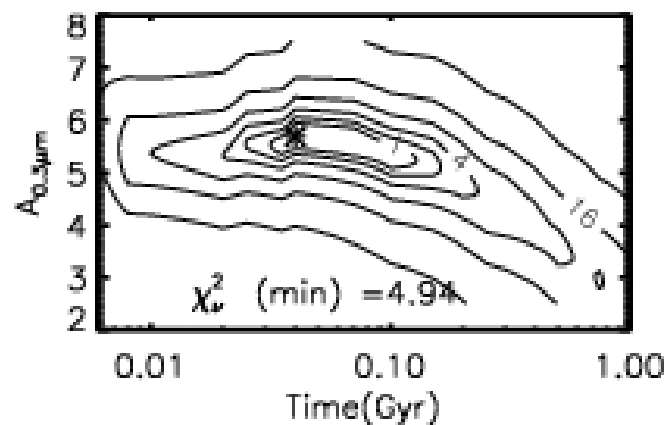
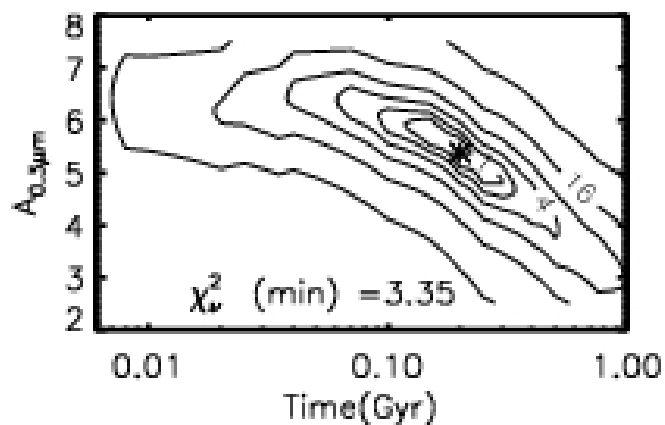
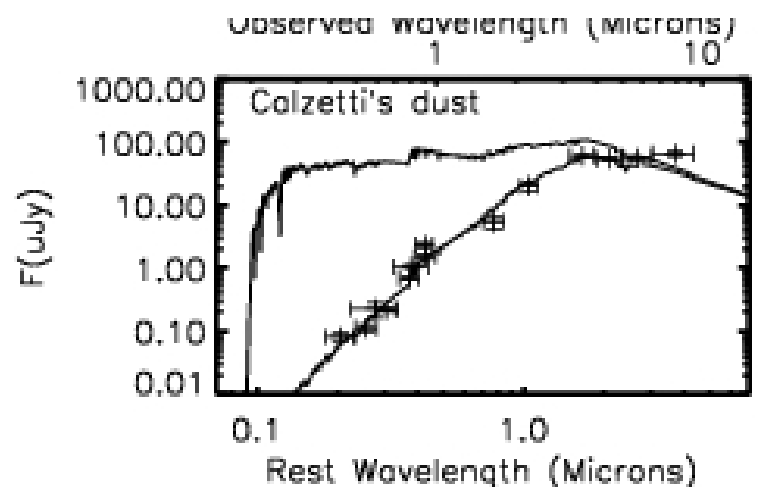
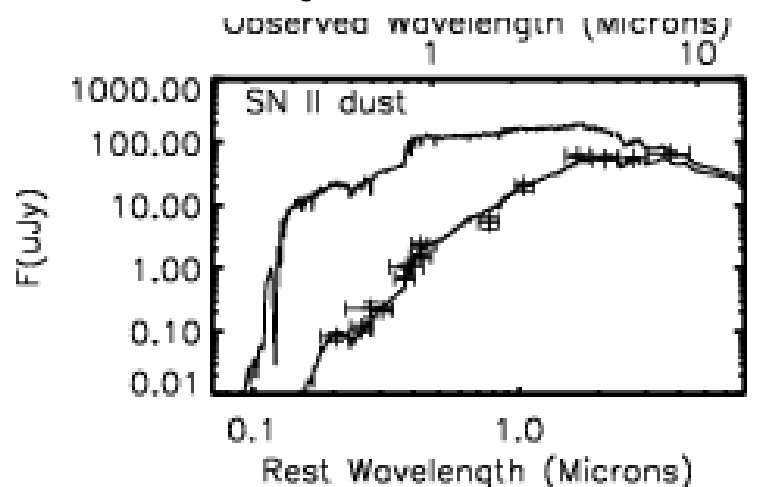
Extinction curve of unmixed ejecta of SNe II

by Hirarshita+05

based on dust formation in

SN ejecta by Nozawa+03

Supernova-condensed dust



SN-dust fits better to the data than Calzetti curve

The dust is SN origin