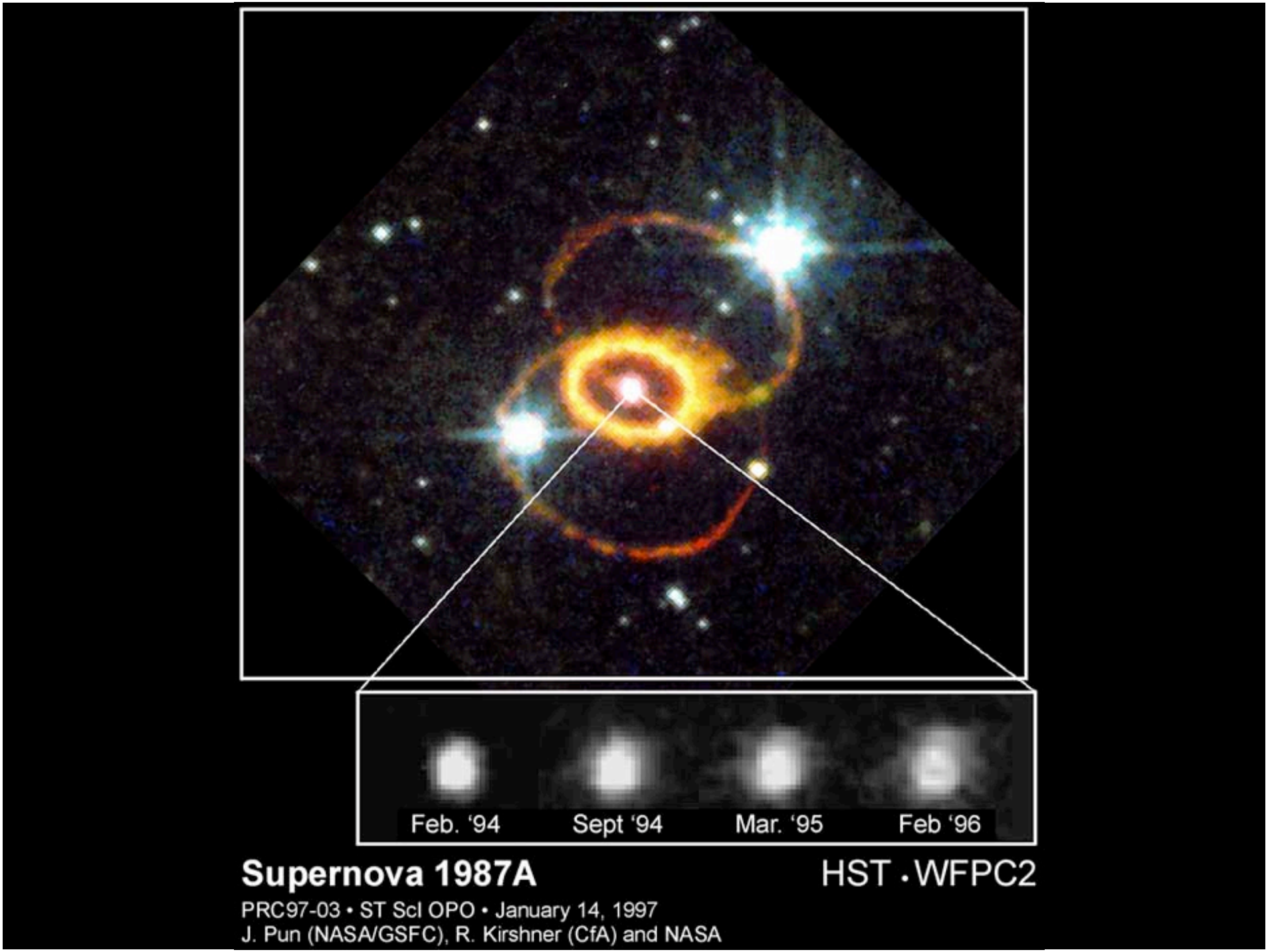
Tarantual Nebula and SN 1987A

[ESO Public Archive]



Supernova 1987A

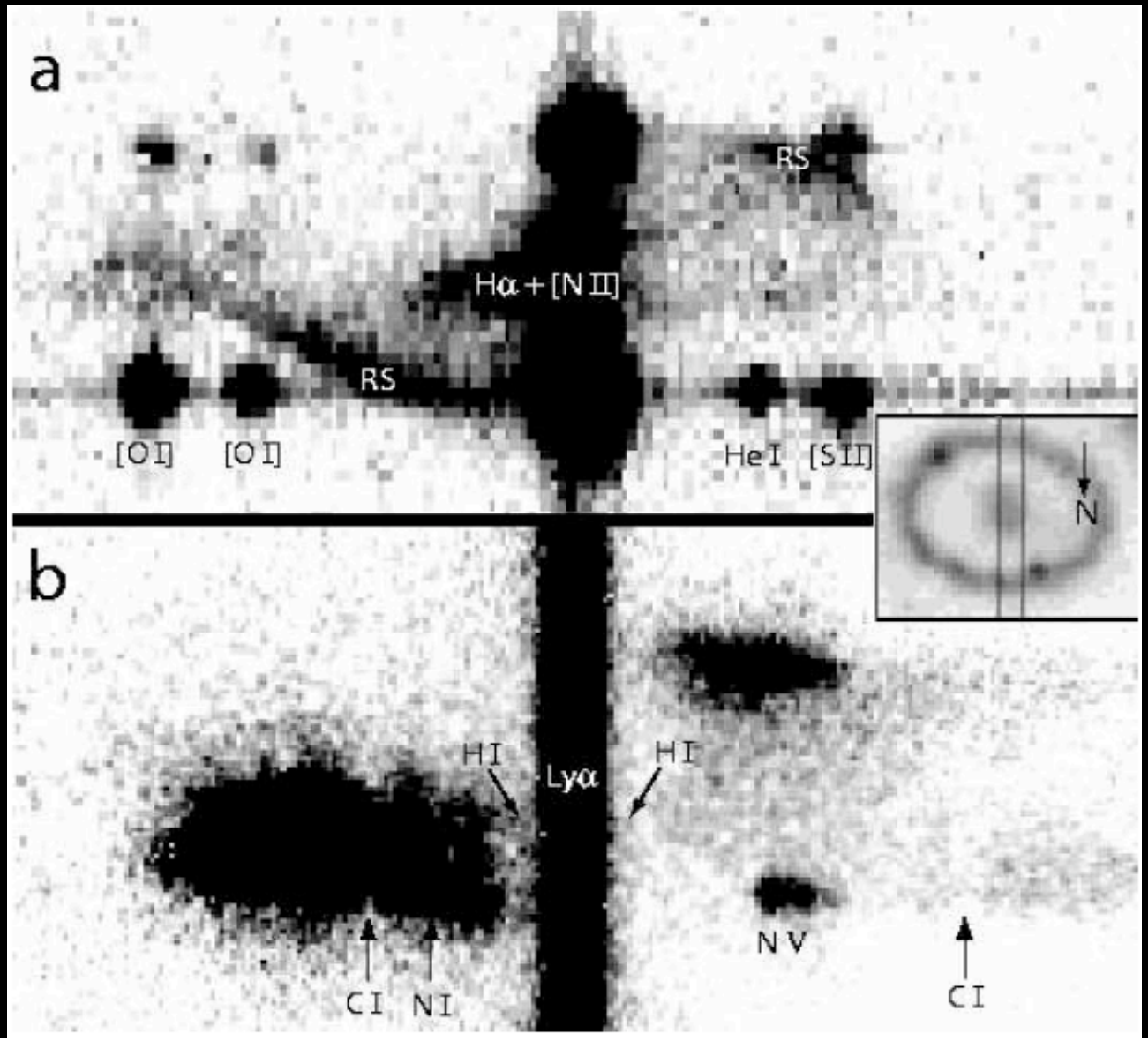
HST • WFPC2

PRC97-03 • ST ScI OPO • January 14, 1997

J. Pun (NASA/GSFC), R. Kirshner (CfA) and NASA

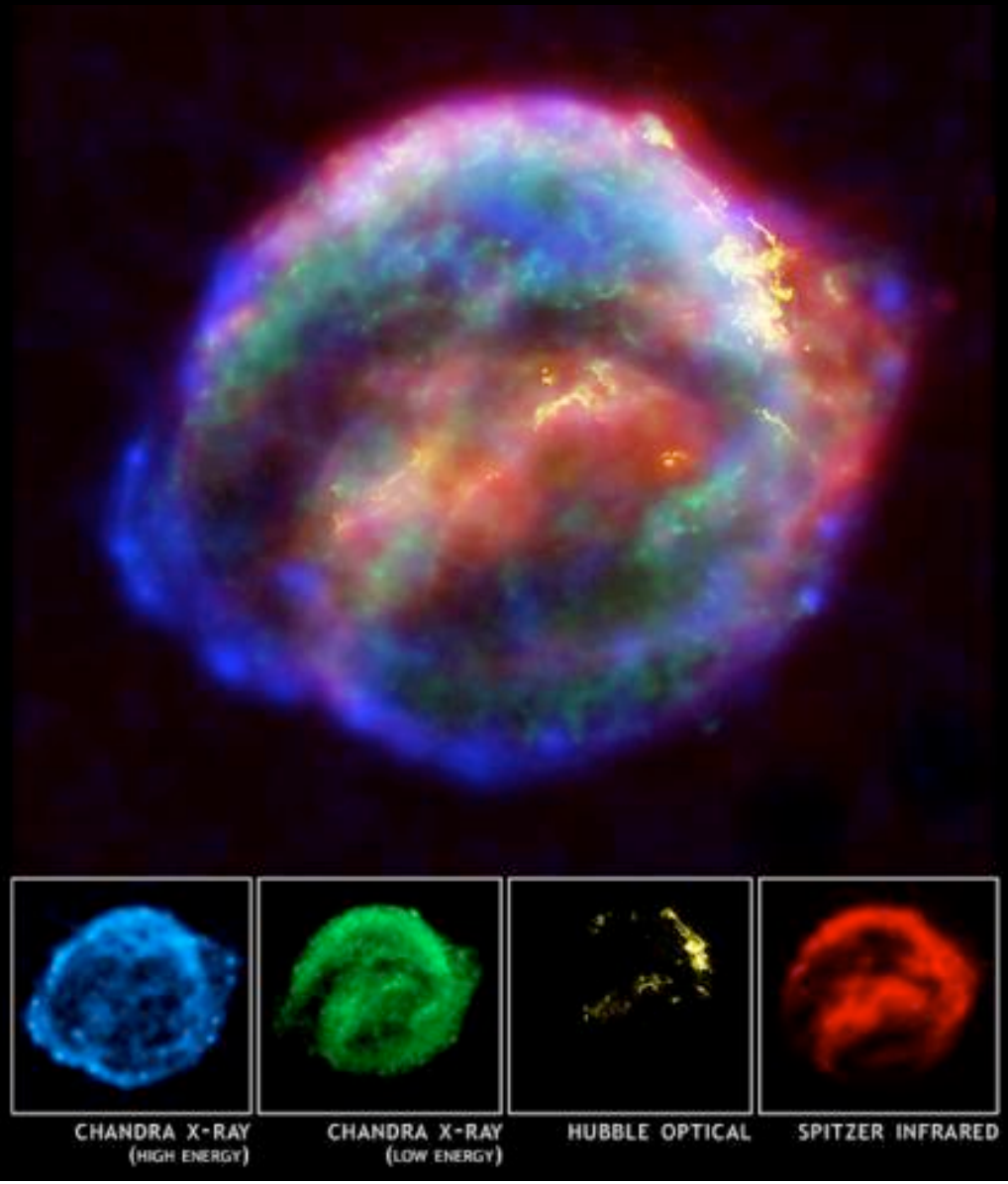
Slit Spectra of the Remnant of 1987A

[Heng et al 2006]



Kepler SN (1604)

[NASA/ESA/JHU/R.Sankrit & W.Blair]



Crab (1054)

ESO Public Archive; blue continuum + Hα + [SII]

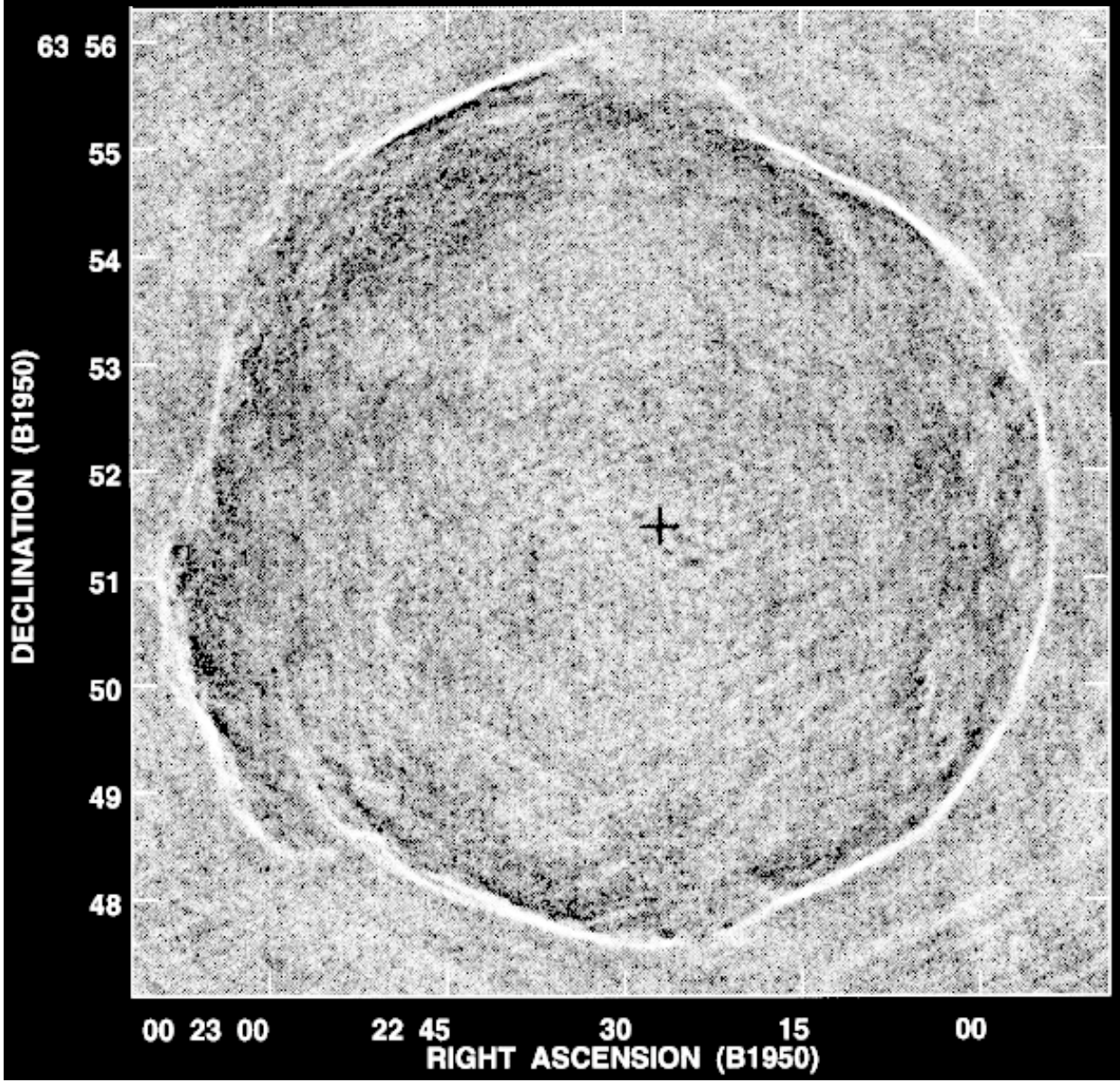
Remnant of Tycho's SN (1572)

X-ray + Optical + IR/24μm

(X-ray: NASA/CXC/SAO, Infrared: NASA/JPL-Caltech; Optical: MPIA, Calar Alto, O.Krause et al.)

Expansion of Tycho

[Reynoso et al 1997]



VLA 1375 MHz

Difference image between 1983/4 and 1994/5

Expansion rate: 0.113%/yr

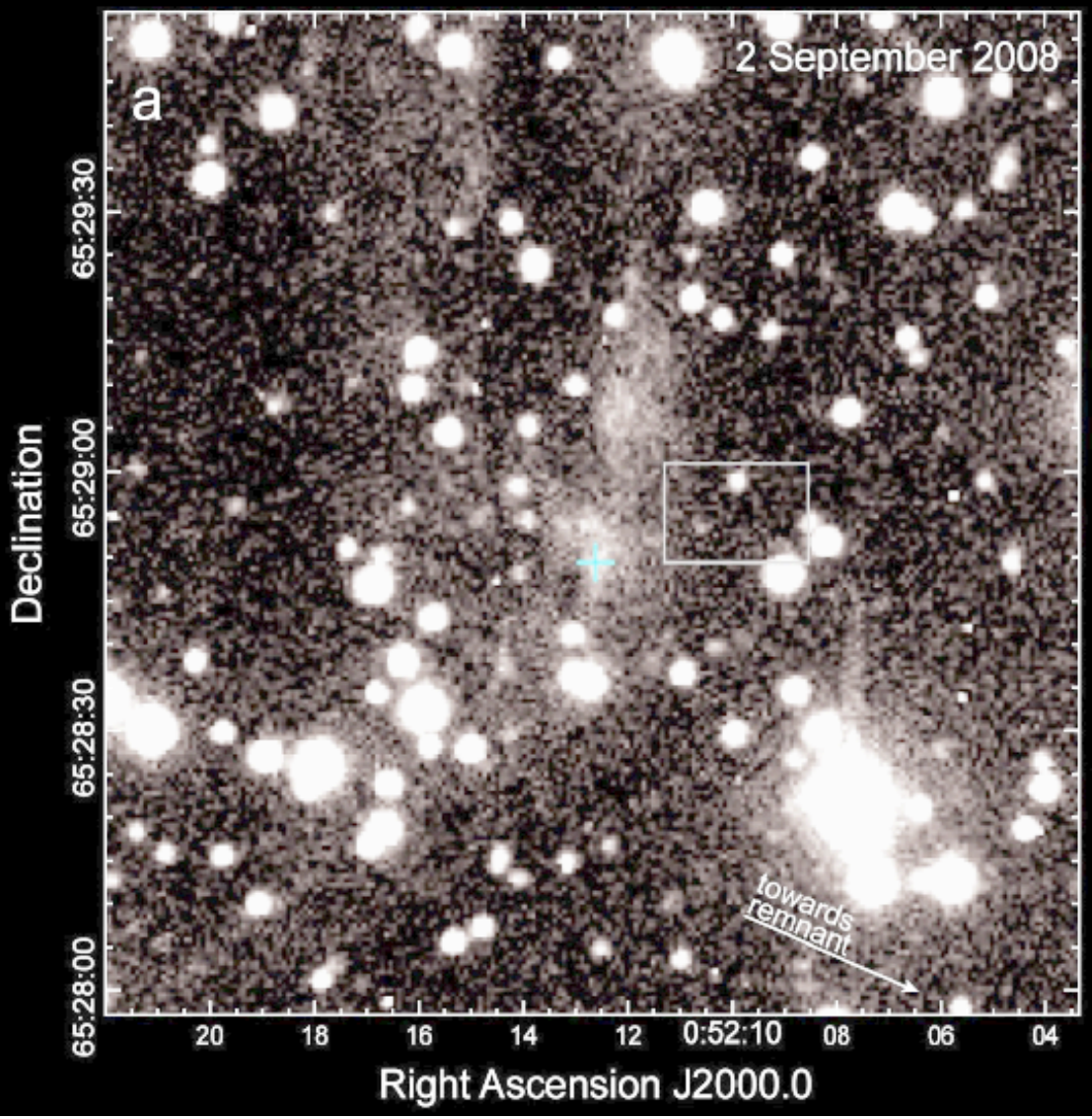
From age (420 yr):

$$\nu = \frac{d\ln R}{d\ln t} = 0.47 \pm 0.03$$

Compare:
Free expansion ν=1
Sedov-Taylor ν=0.4
Snowplow ν=0.25

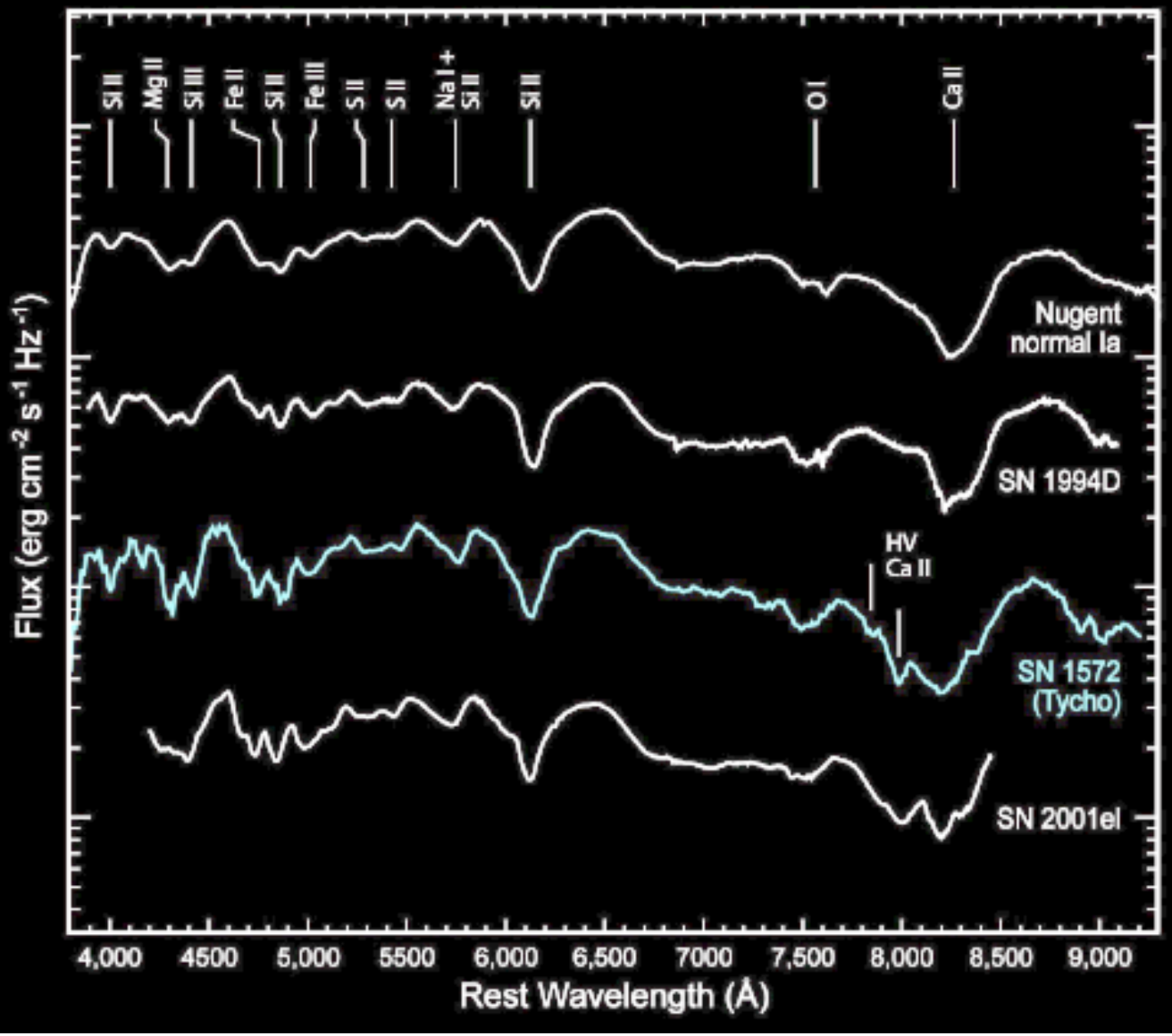
Light Echo from Tycho SN

[Krause et al 2008]



Light Echo from Tycho SN

[Krause et al 2008]



Remnant of Vela SN

[ESO Public Archive]