

Stockholm
University

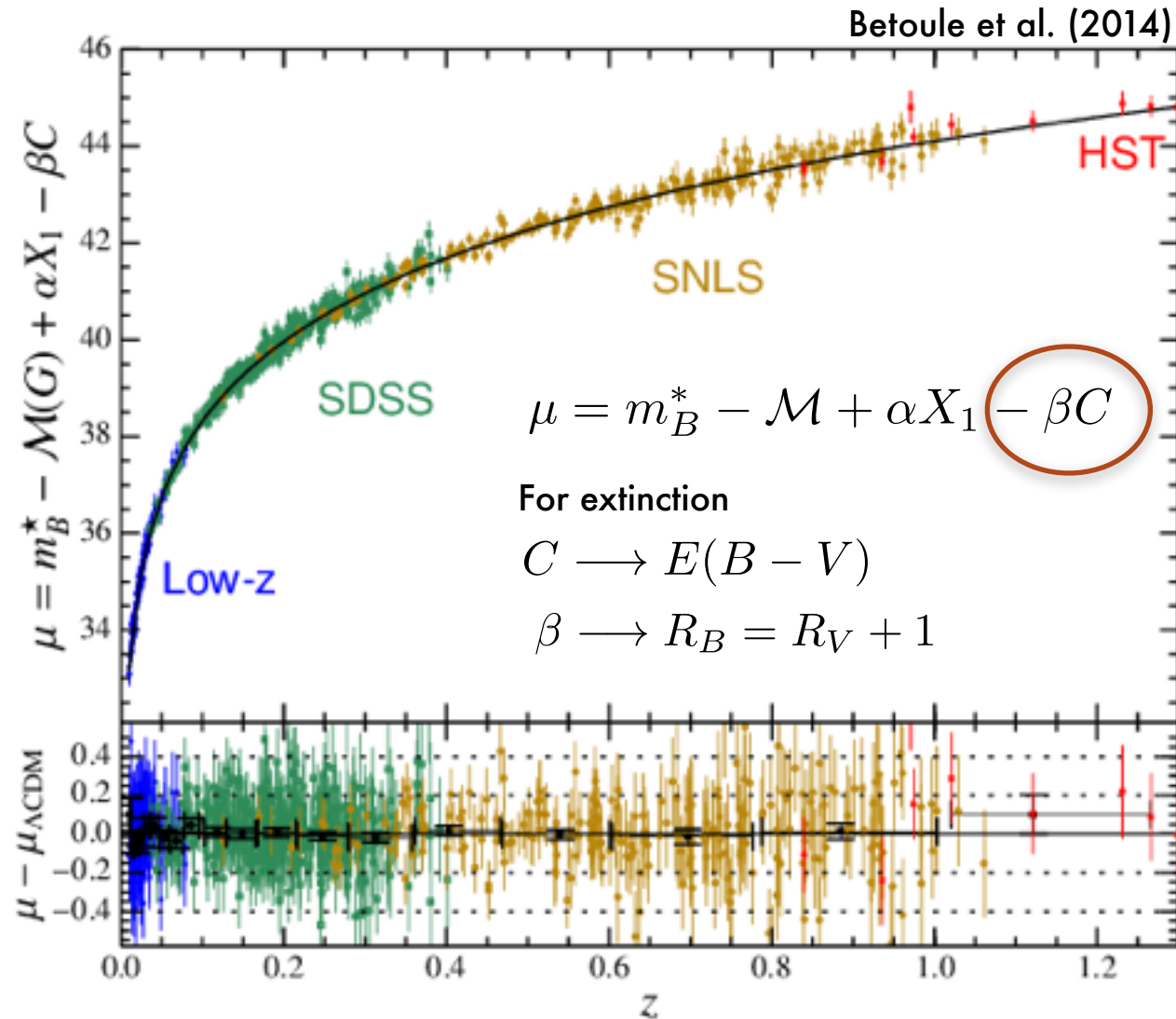


Extinction and Type Ia Supernovae

Rahman Amanullah

iPTF meeting June 2 — 5, Stockholm

The SN Ia Hubble Diagram

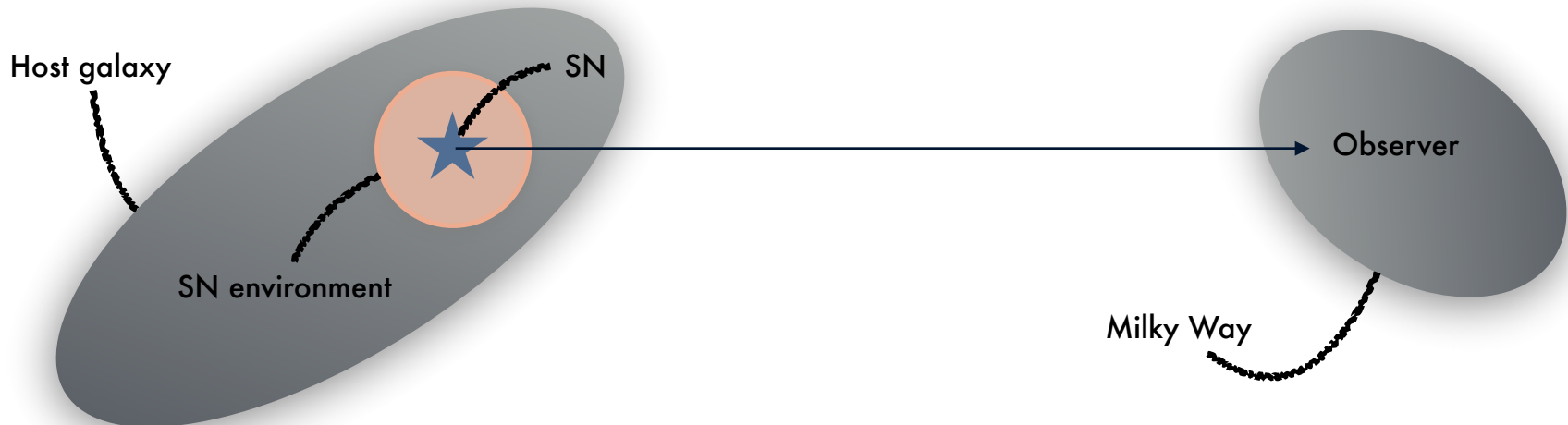
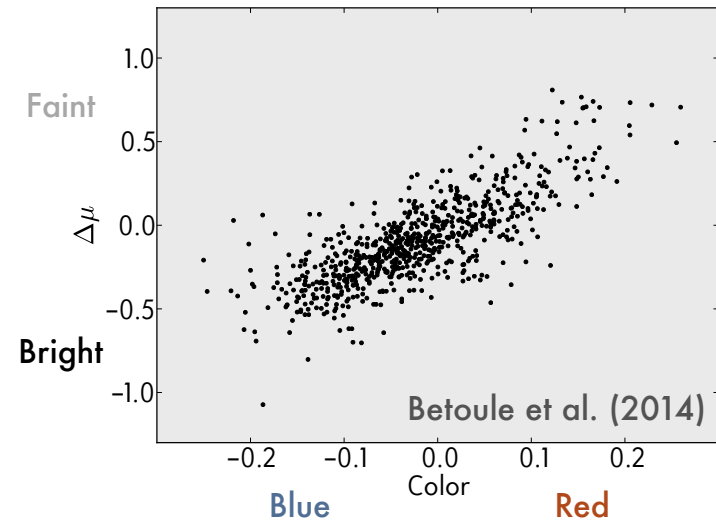


The origin of SN color?

Extinction

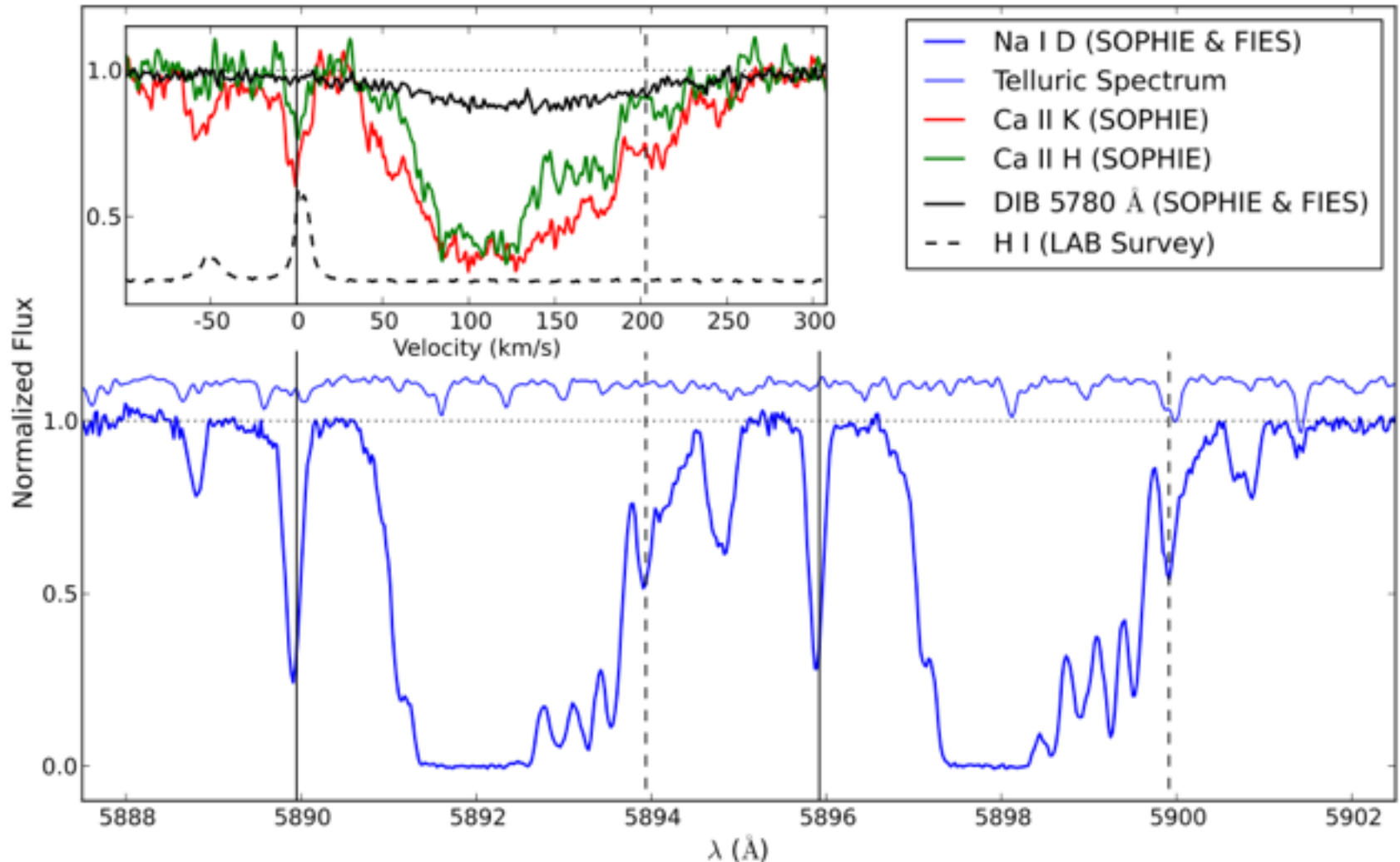


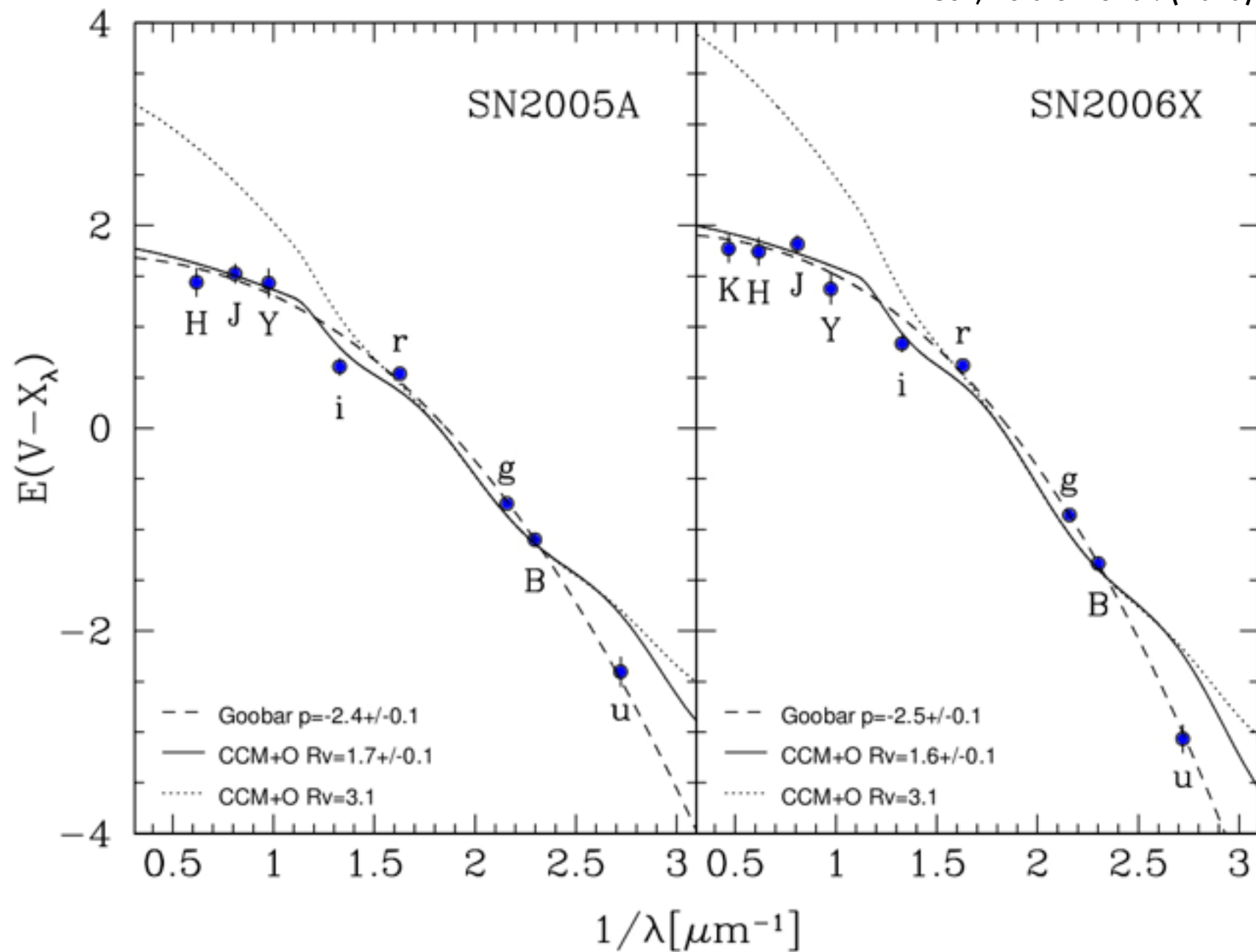
Intrinsic variability



High-resolution spectroscopy

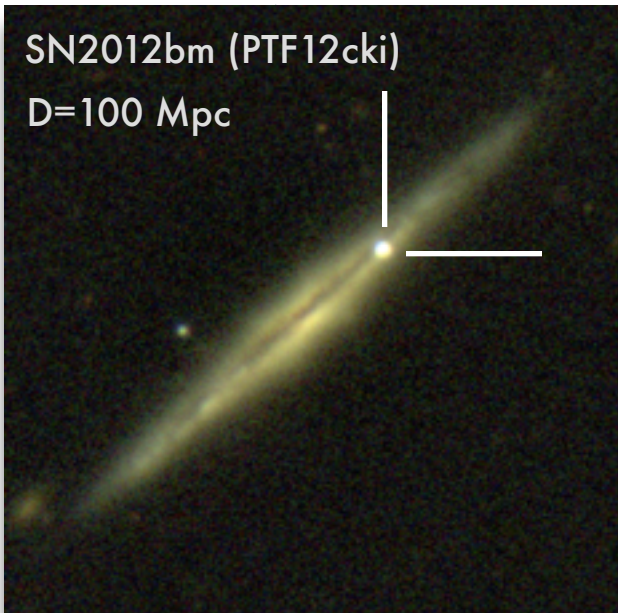
Goobar et al. (2014)





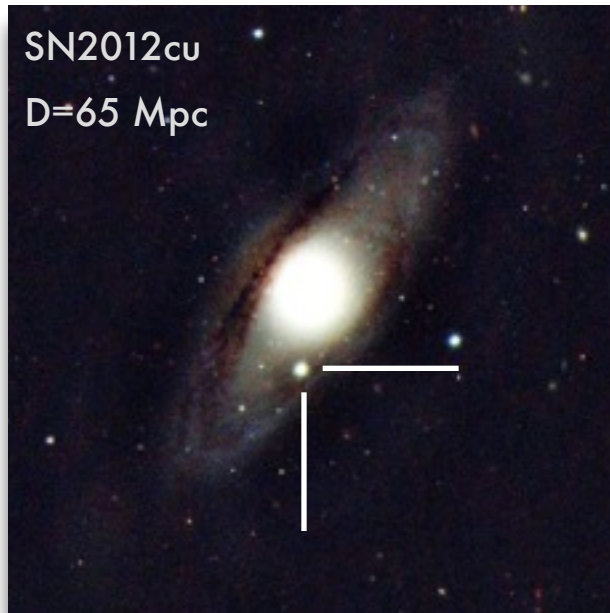
SN2012bm (PTF12cki)

D=100 Mpc



SN2012cu

D=65 Mpc

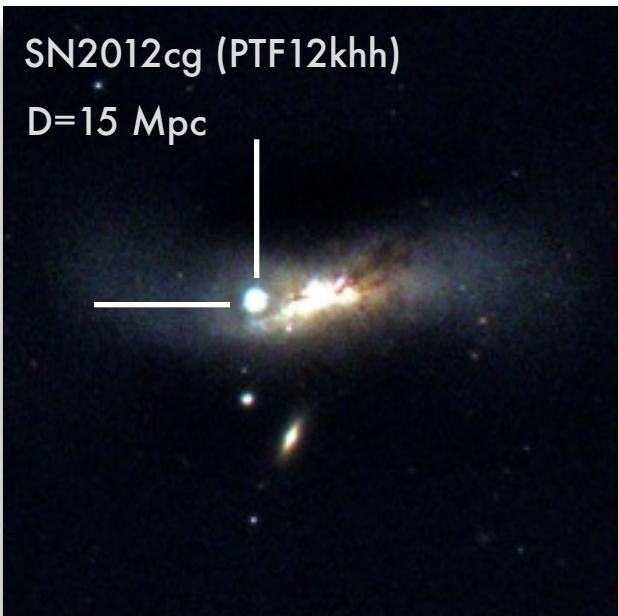


+SN2012bl

+SN2012et (no reddening)

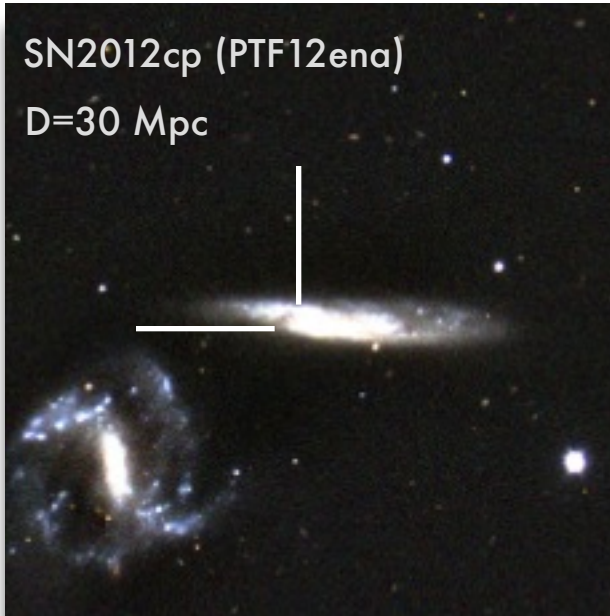
SN2012cg (PTF12khh)

D=15 Mpc



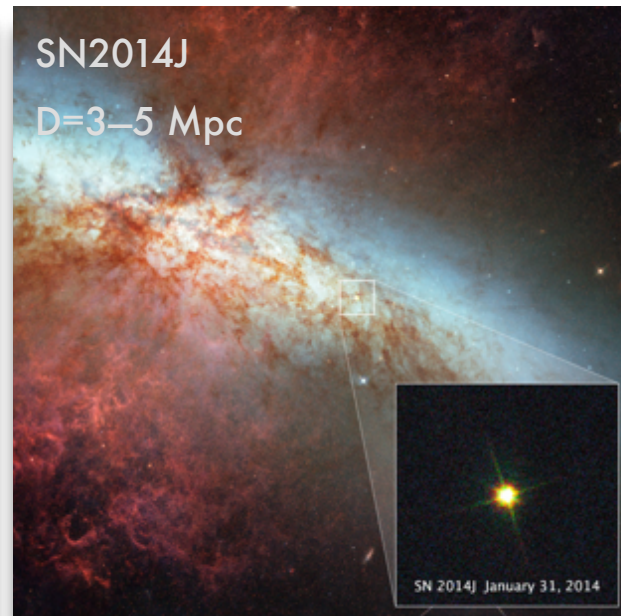
SN2012cp (PTF12ena)

D=30 Mpc



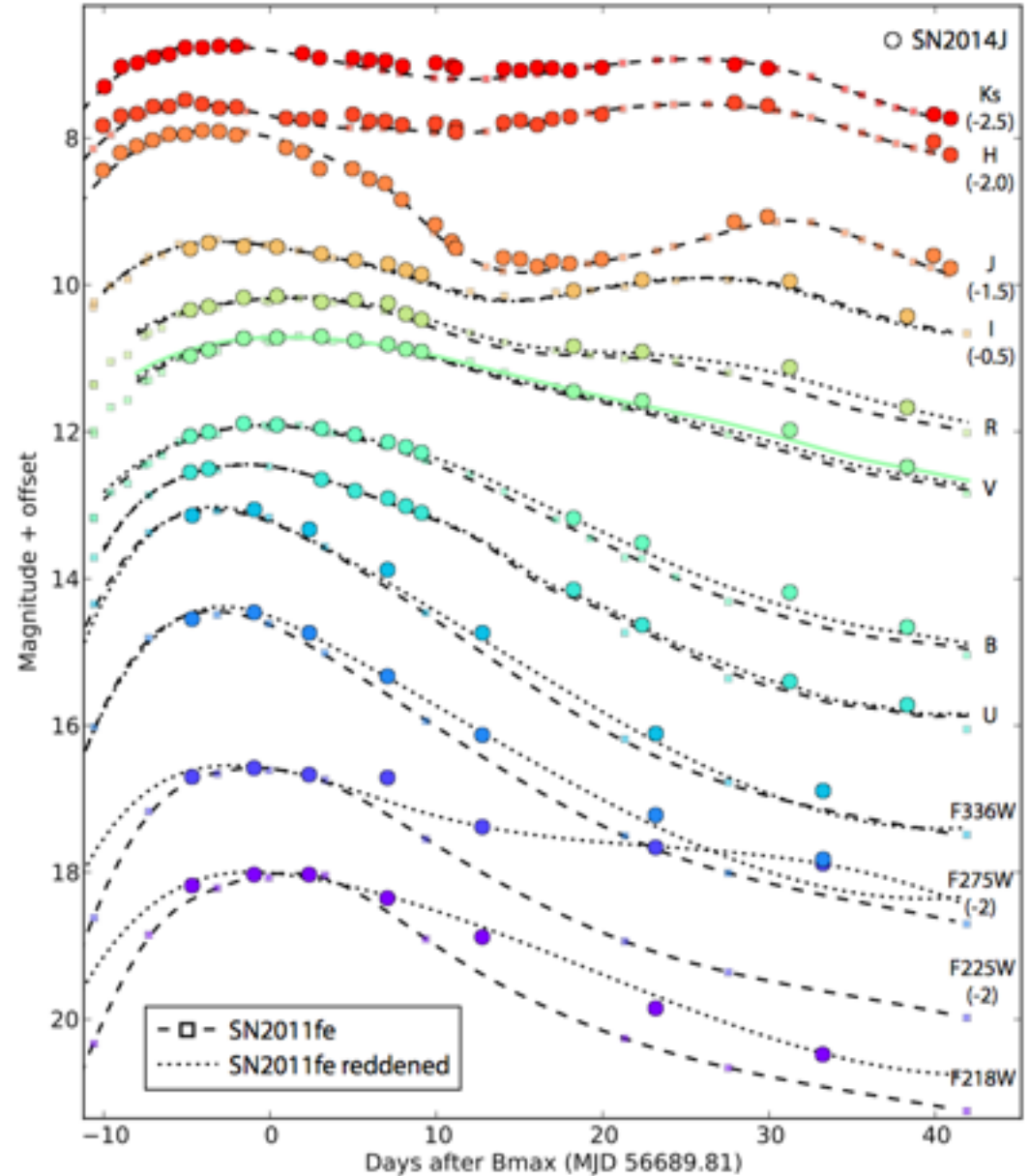
SN2014J

D=3–5 Mpc



Lightcurve resembles that of
SN2011fe when reddening is
taken into account

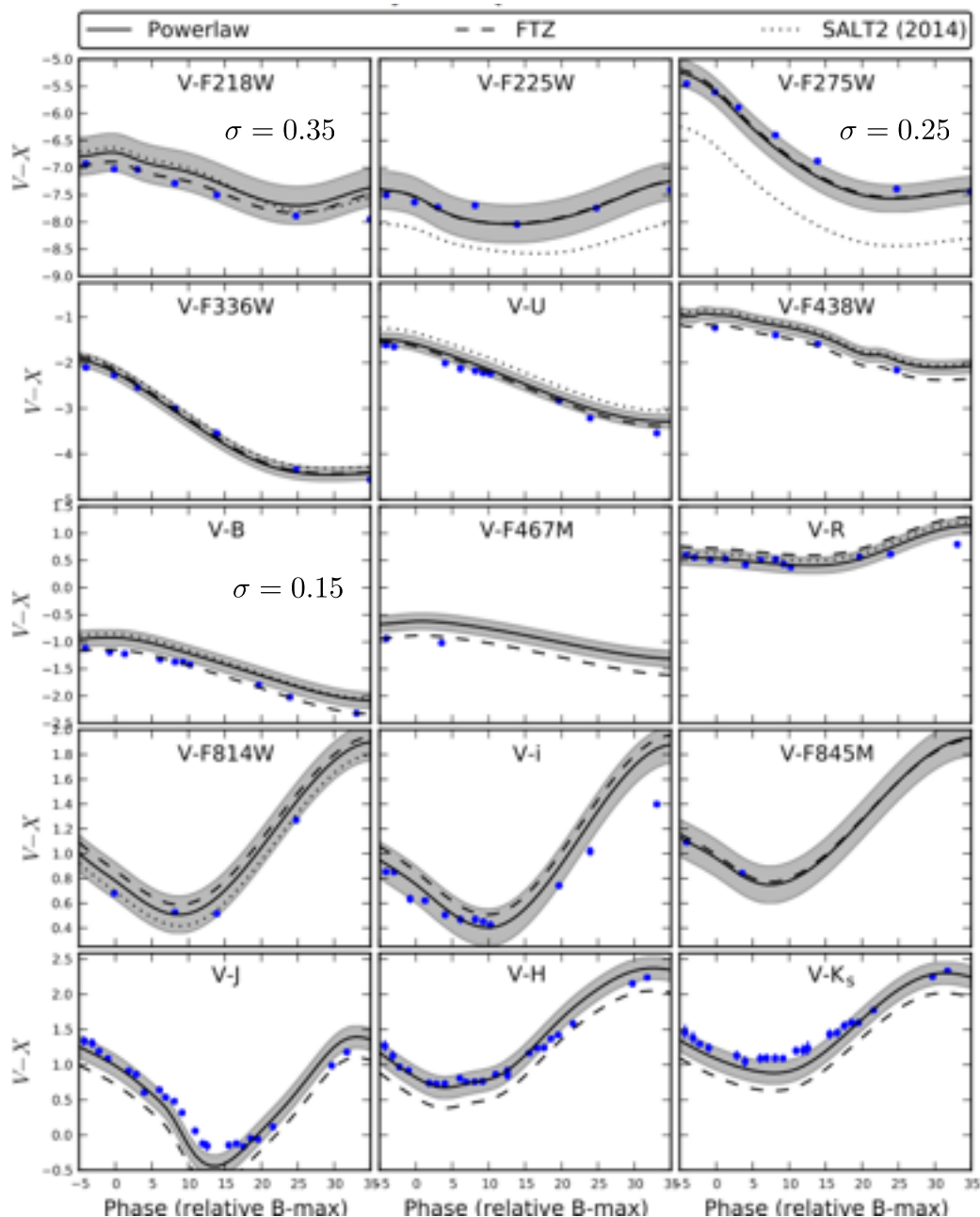
The difference in lightcurve
shape increases for bluer
wavelengths



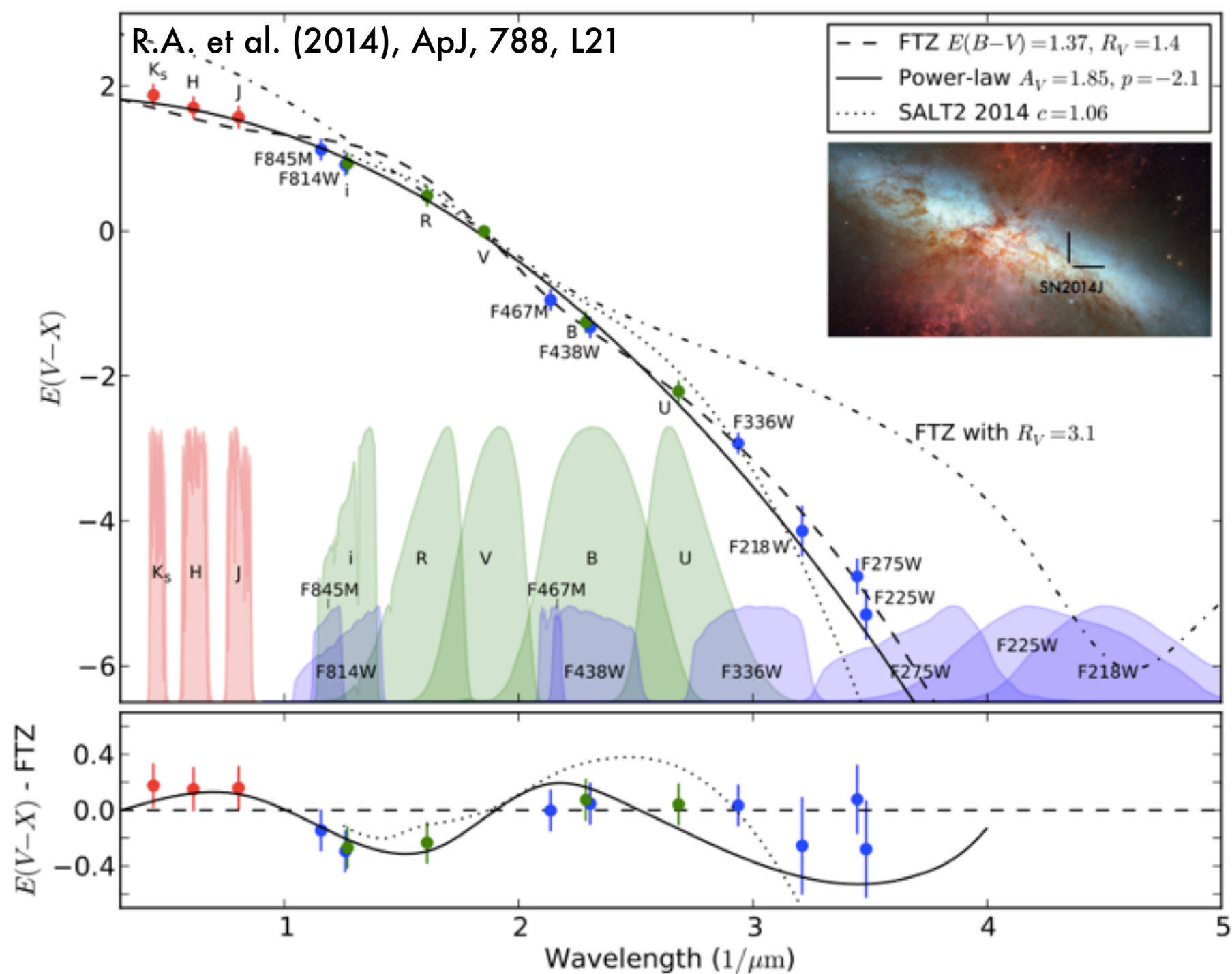
Black lines represent the colours of SN2011fe after applying different extinction models

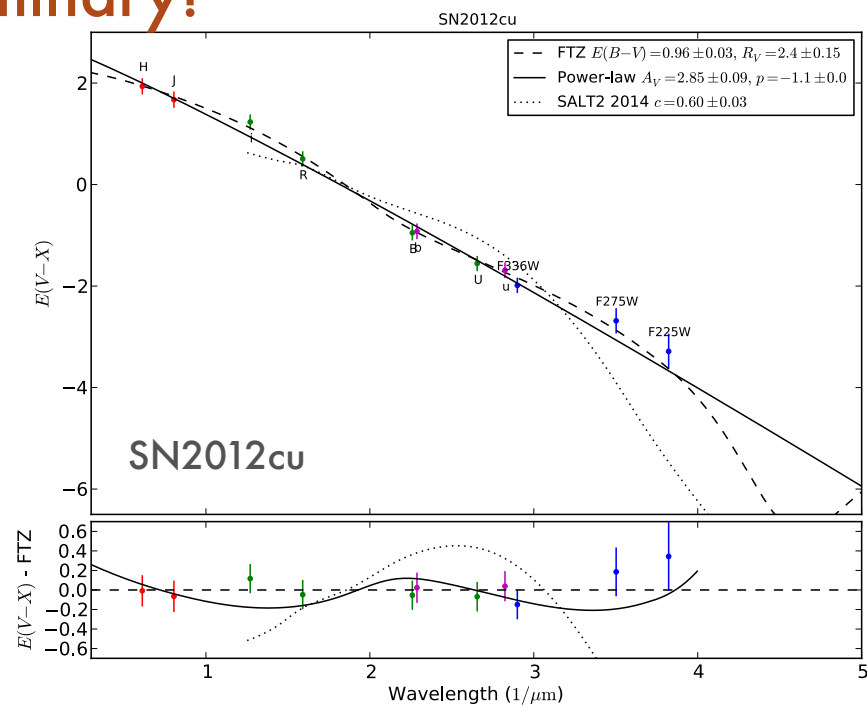
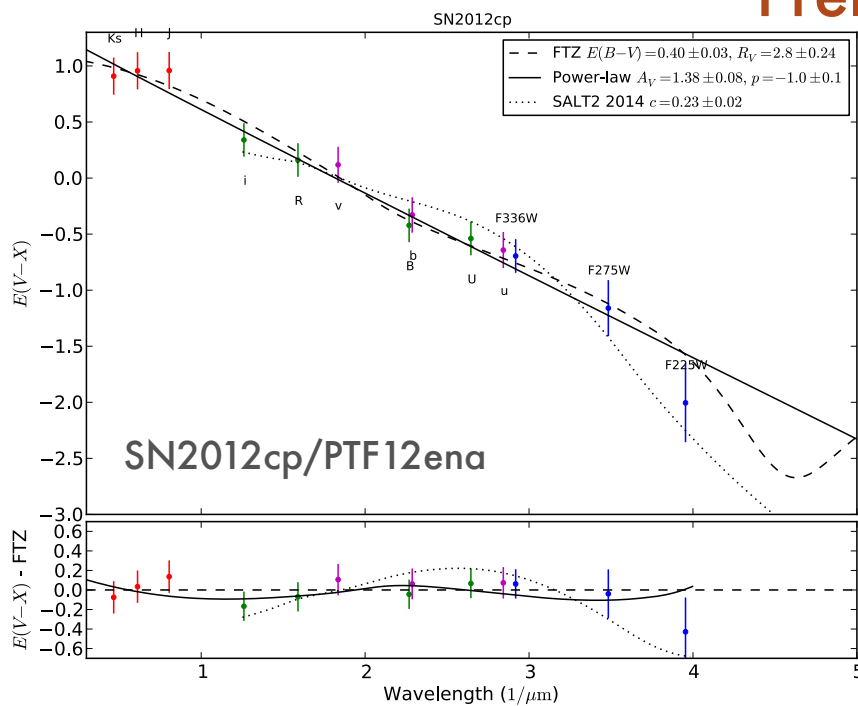
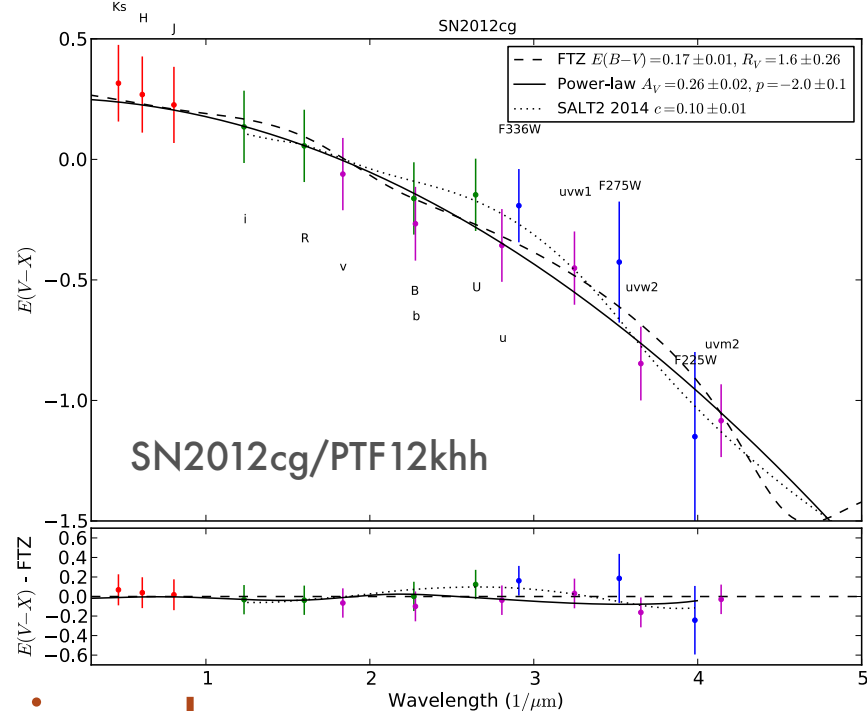
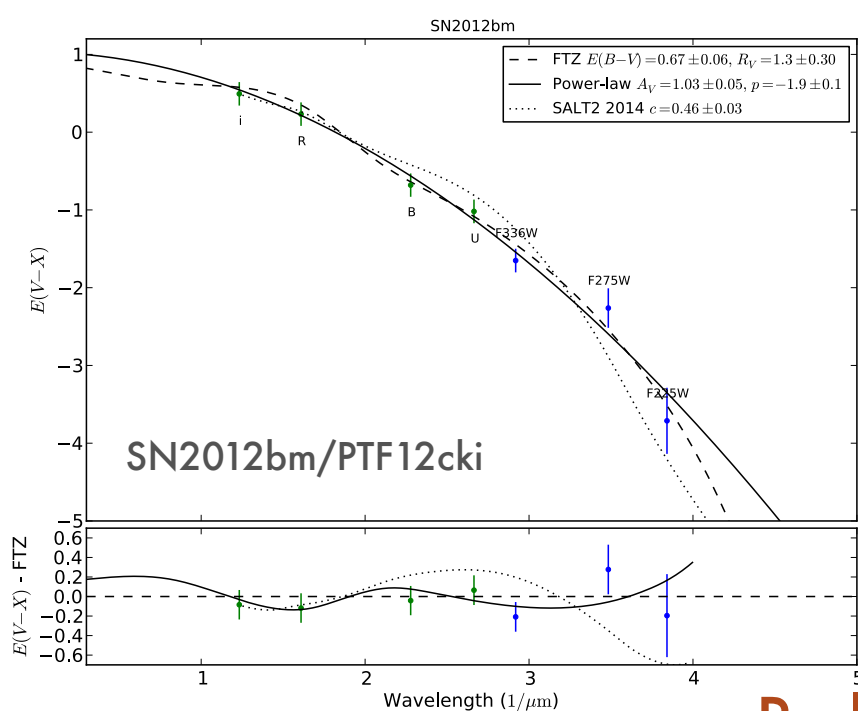
Grey band represent adopted color uncertainty of SNe Ia.

Blue points are measurements of SN2014J



R.A. et al. (2014), ApJ, 788, L21

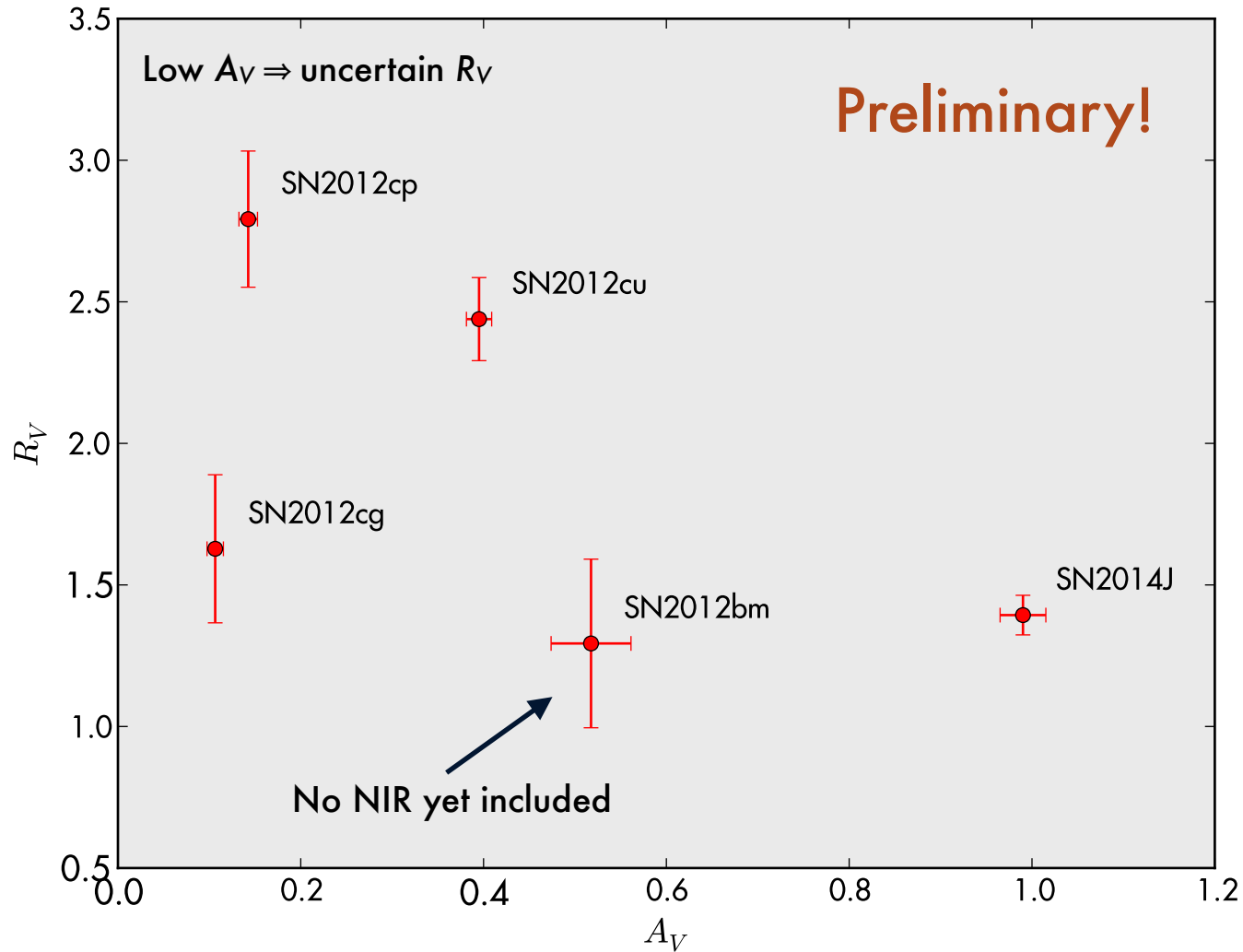




Preliminary!

LO

Combined results



Summary

