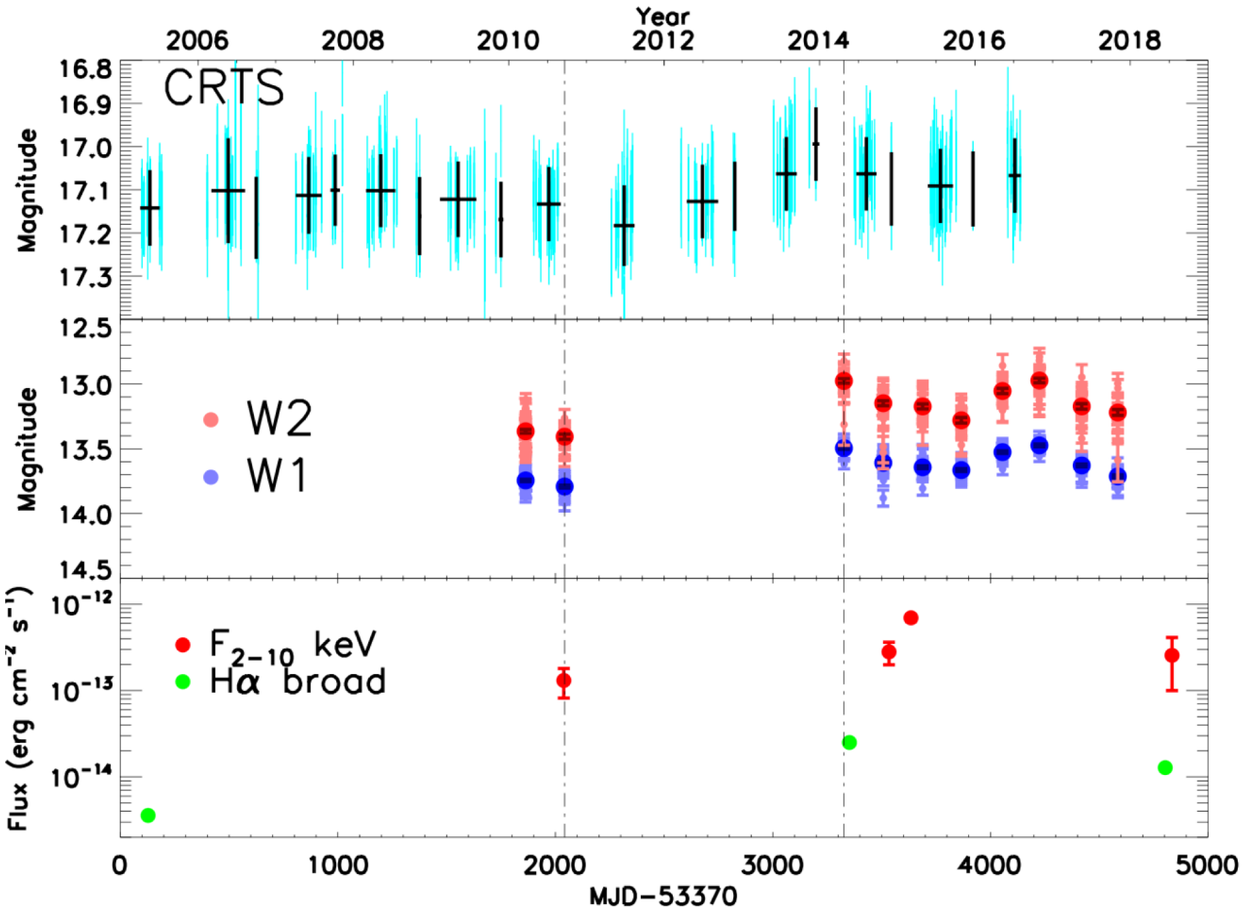
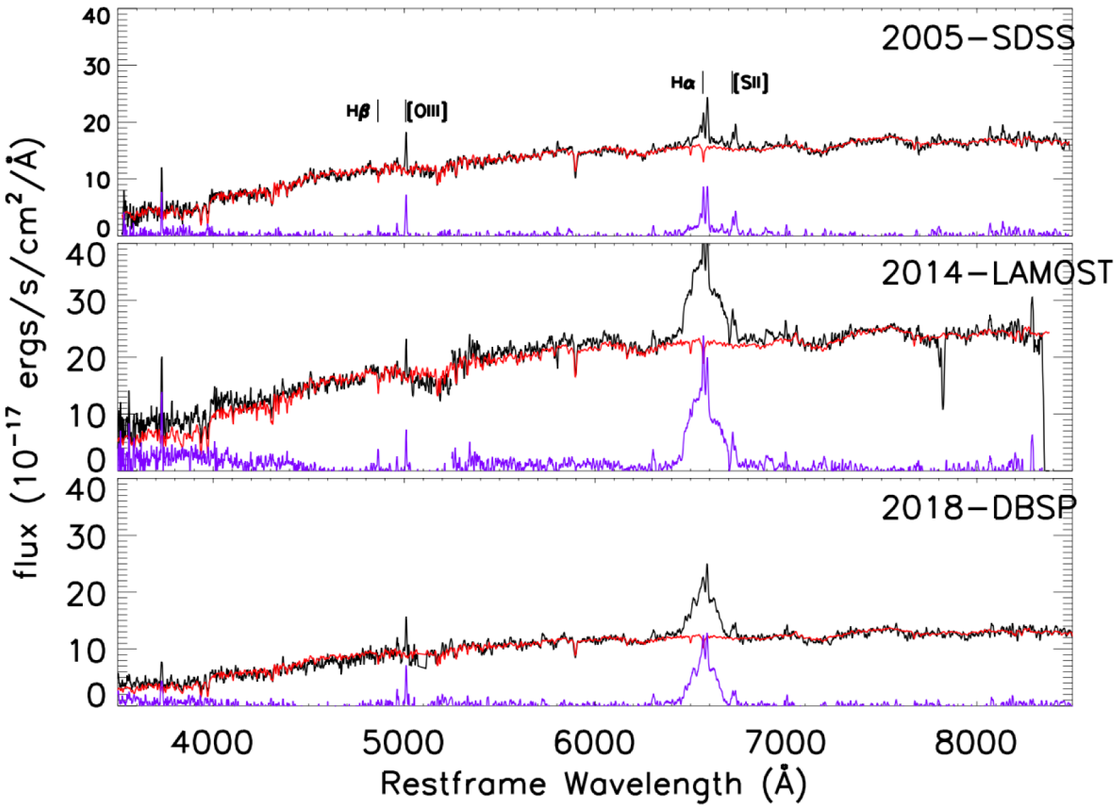
Changing-look Seyfert SDSS J1552+2737:

- **Hα line varied a factor of 6** on timescales of decade

- Significant **variations in infrared, optical, and X-ray**





Argument against obscuration of variation:

- **Amplitude** : ΔV ∼11mag required by change of obscuration on ΔW ~ 0.5 mag
- **Timescale**: cross timescale of obscurer longer than observed

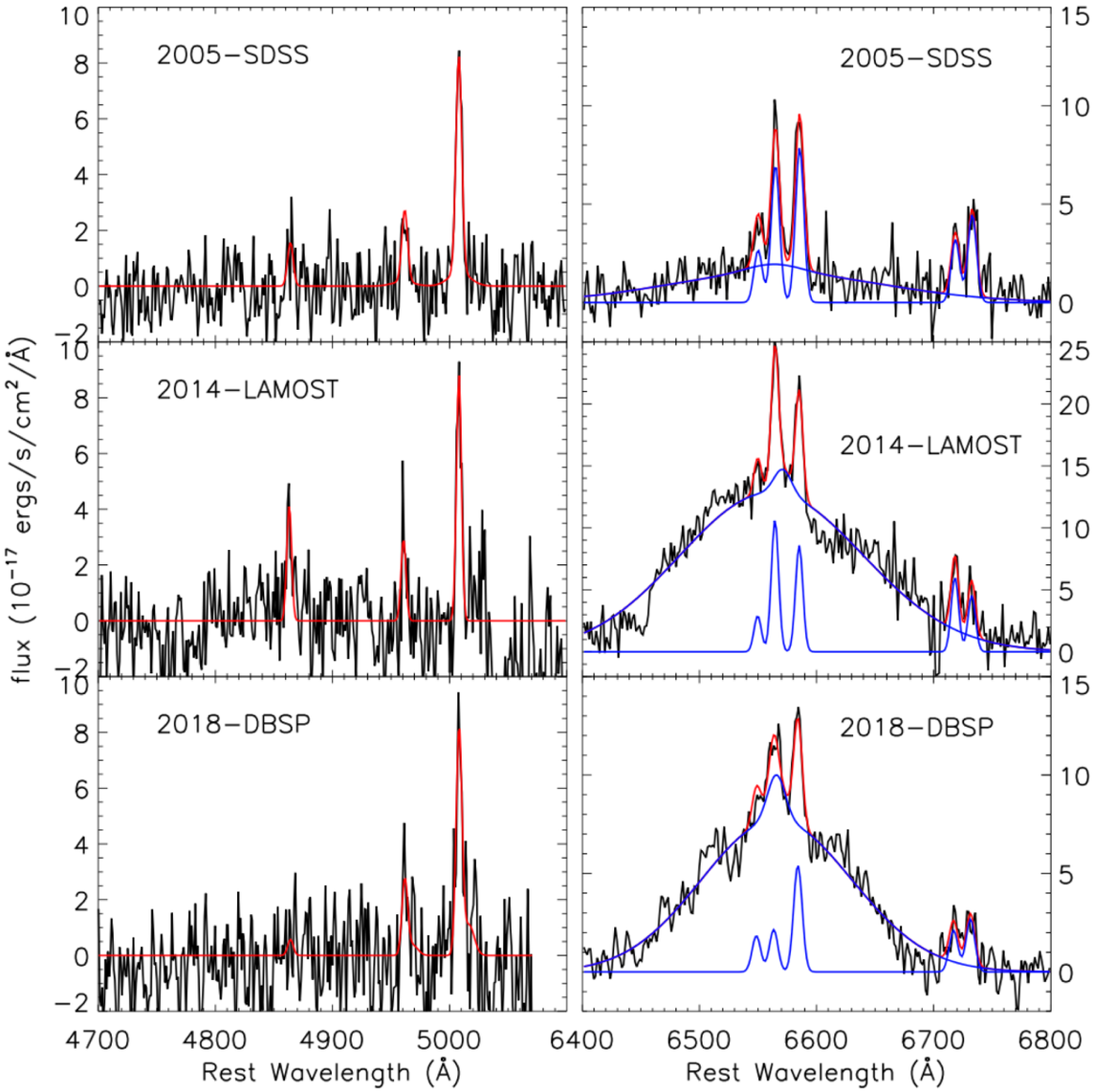
$$T_{\rm cross} \sim 15.8 \ {\rm yr}$$

Our results prefer that:

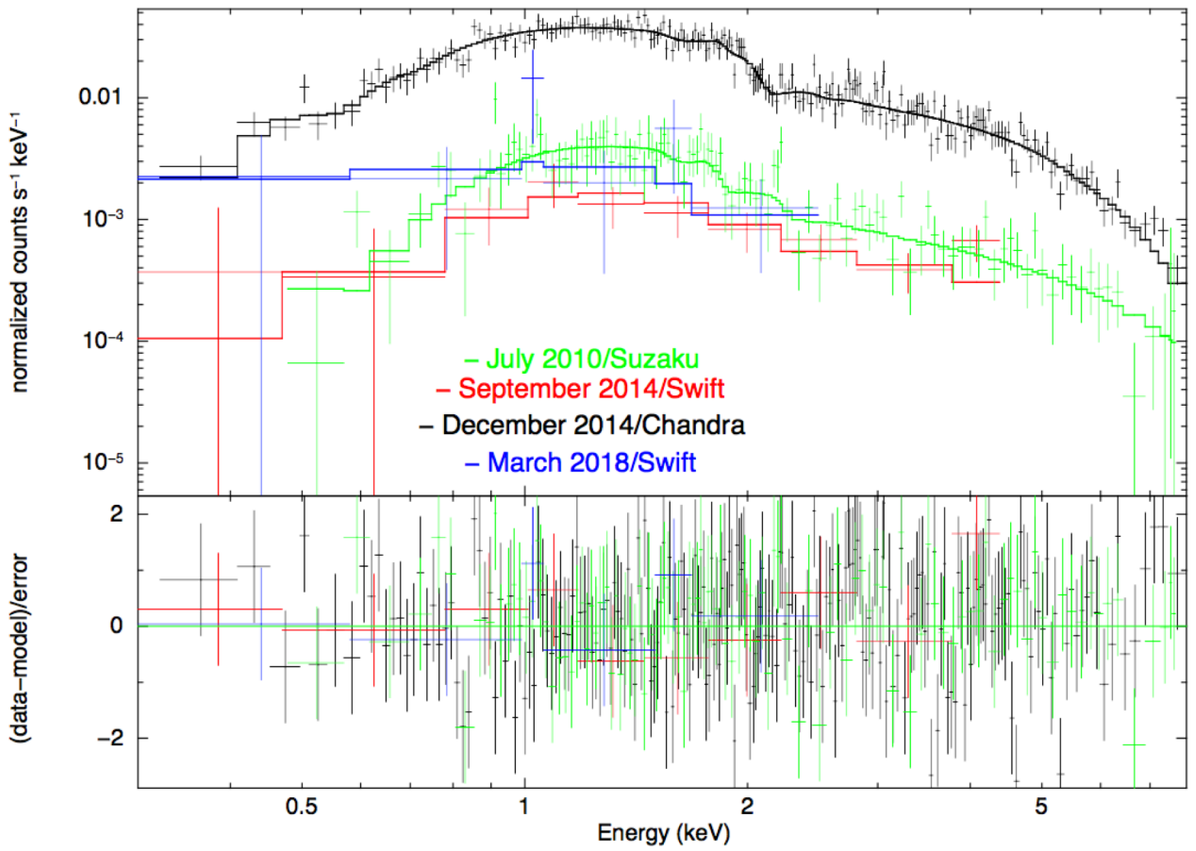
Variations of SDSS J1552 are dominated by the intrinsic variation of accretion disk

More detail

- **Broad Hα varied a factor of 6**
- **Non-detection of broad Hβ**



un-detection of broad Hβ maybe due to obscuration



Five times variation in 2-10 keV flux

$$N_H \sim 10^{21} cm^{-2}$$

Epoch	E(B-V)$_{NLR}$	E(B-V)$_{BLR}$
2005-SDSS	0.71±0.26	> 0.23
2014-LAMOST	0.26±0.62	> 1.63
2018-DBSP	0.59±1.64	> 1.65

Discussion

Argument against obscuration of variation:

- **Amplitude ---** ΔW ~ 0.5 mag, then ΔV ~11mag **required by change of obscuration with assumed extinction model, not agree with light curve**
- **Timescale ---- mid-infrared variation indicate size of obscurer comparable to torus, cross timescale longer than observed**

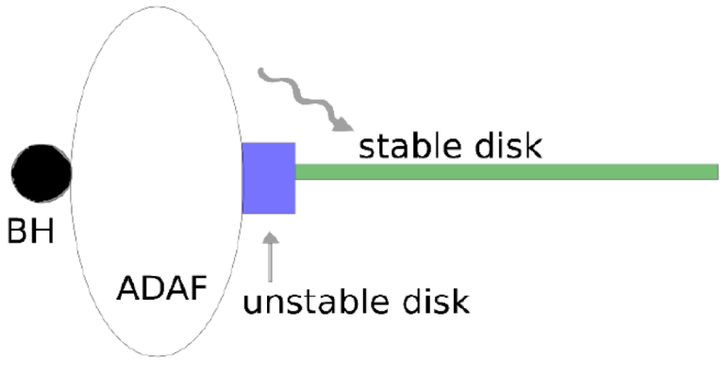
$$R_{\rm sub} = 0.5 L_{46}^{0.5} (1800K/T_{\rm sub})\ {\rm pc} = 0.098\ {\rm pc}$$

$$T_{\rm cross} \sim 15.8\ {\rm yr}$$

Accretion physics

L/L_{Edd} ~ 0.001 ~0.04

Central region maybe not standard thin disk, could be advection-dominated accretion flow (ADAF)



When Eddington ratio ~a few percent

- **Temporary appearance/disappearance of warm corona associated with observed changing-look phenomena (Noda & Done 2018)**
- **Radiation pressure instability in a narrow zone between outer cold gas-dominated disk and inner hog ADAF lead to out-burst (Sniegowska & Czerny 2019)**