

Study of a Tidal Disruption Event Candidate

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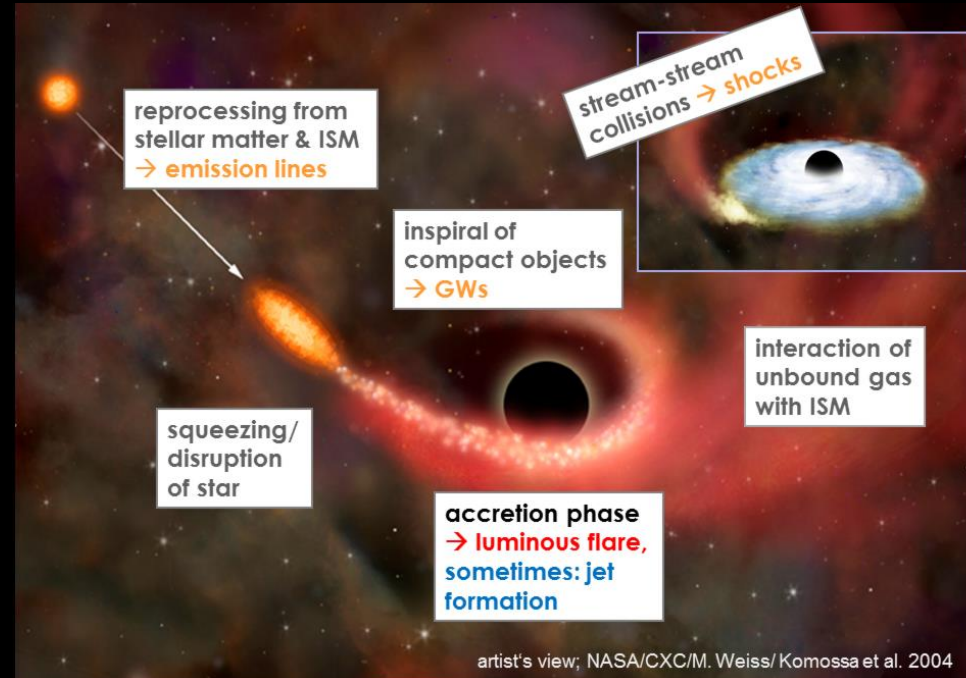
Collaborator: M. Freyberg,
J. Greiner, S. Komossa

Extract from video:

<https://www.youtube.com/watch?v=hu6hIhW00Fk>

TDEs – What for?

- Extreme conditions
- IMBHs
- BH binaries
- Recoiling binaries
- Measurements BH spin + mass
- Map cores of quiescent galaxies



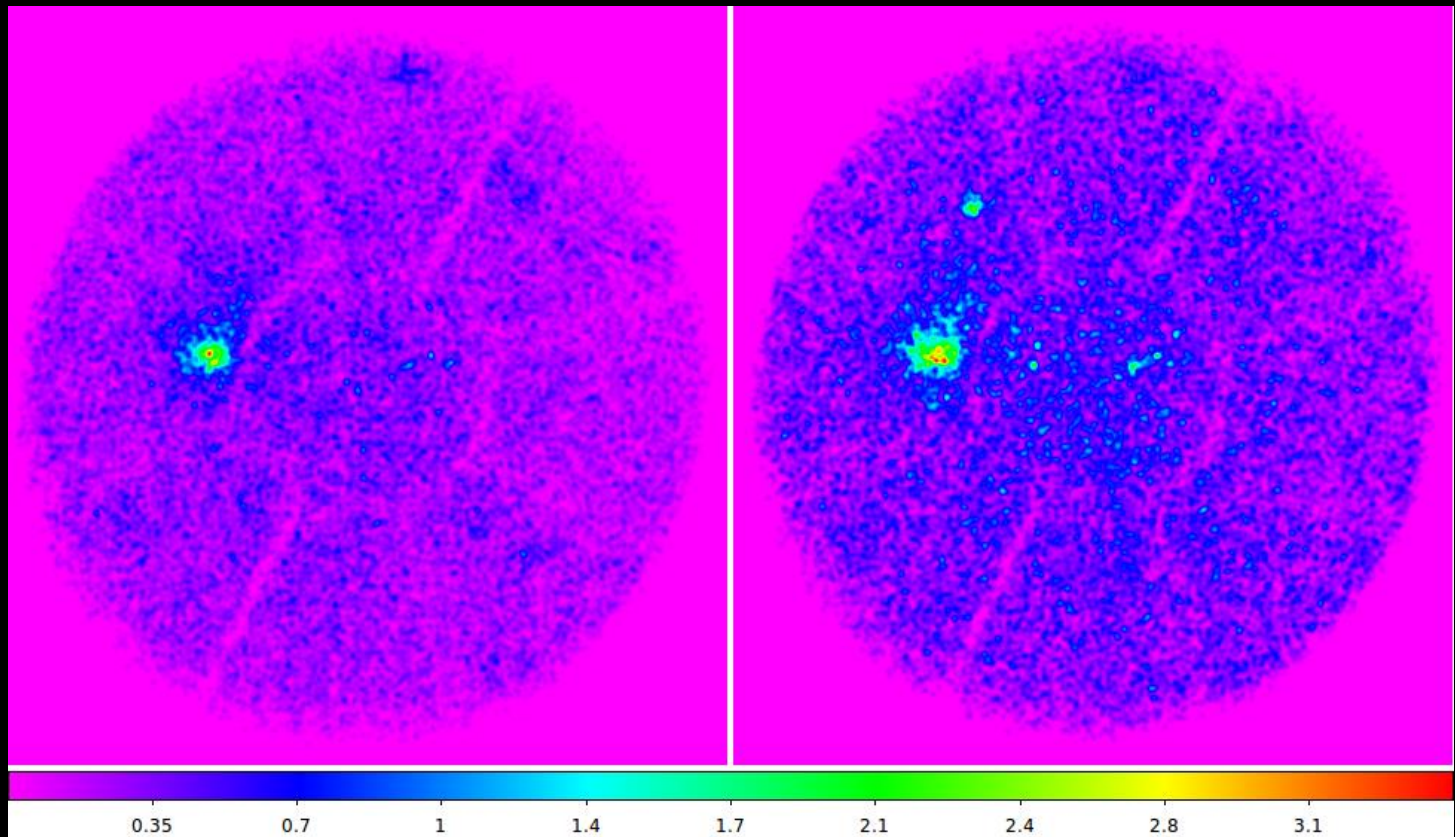
TDE Characteristics

- Very luminous
- X-ray outburst lasting up to several months
- Located at center of quiescent galaxy
- Soft spectrum



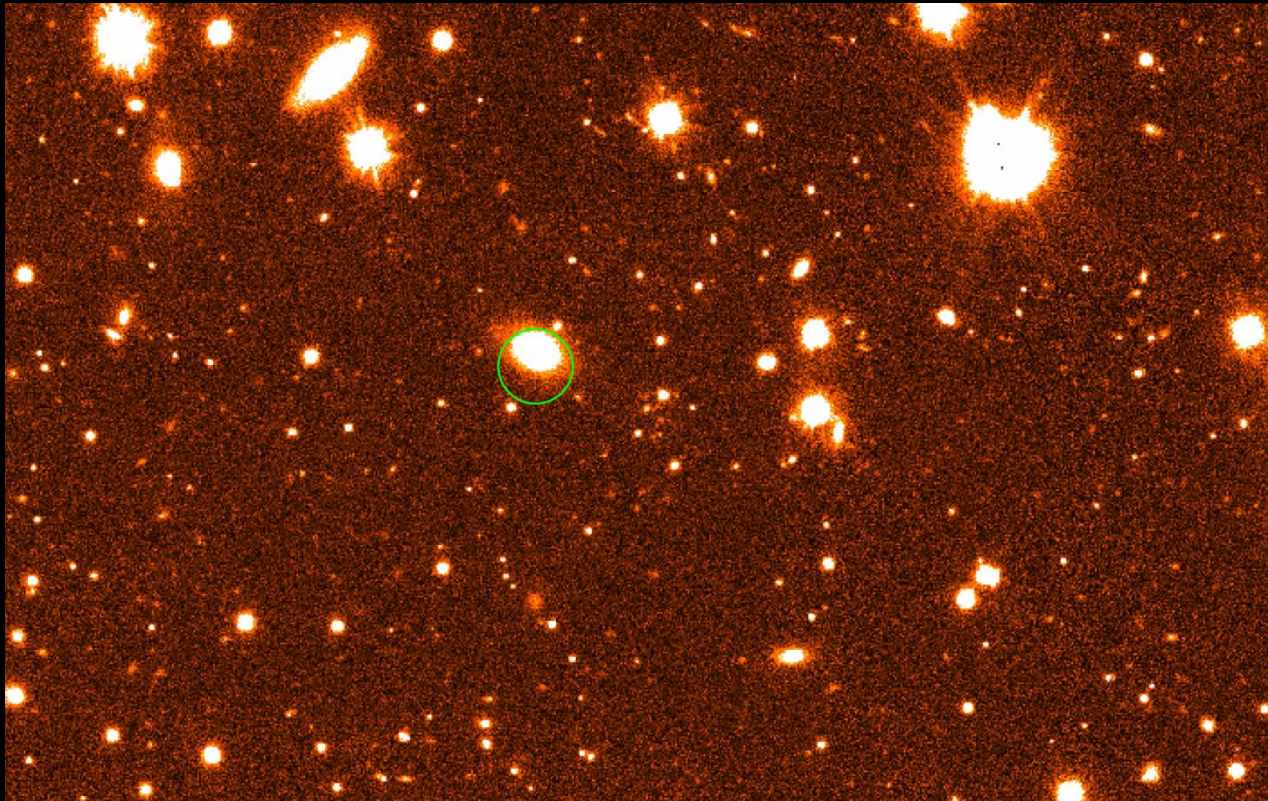
The Observation

- Set of 5 ROSAT PSPC observation within a year
- Two show the source



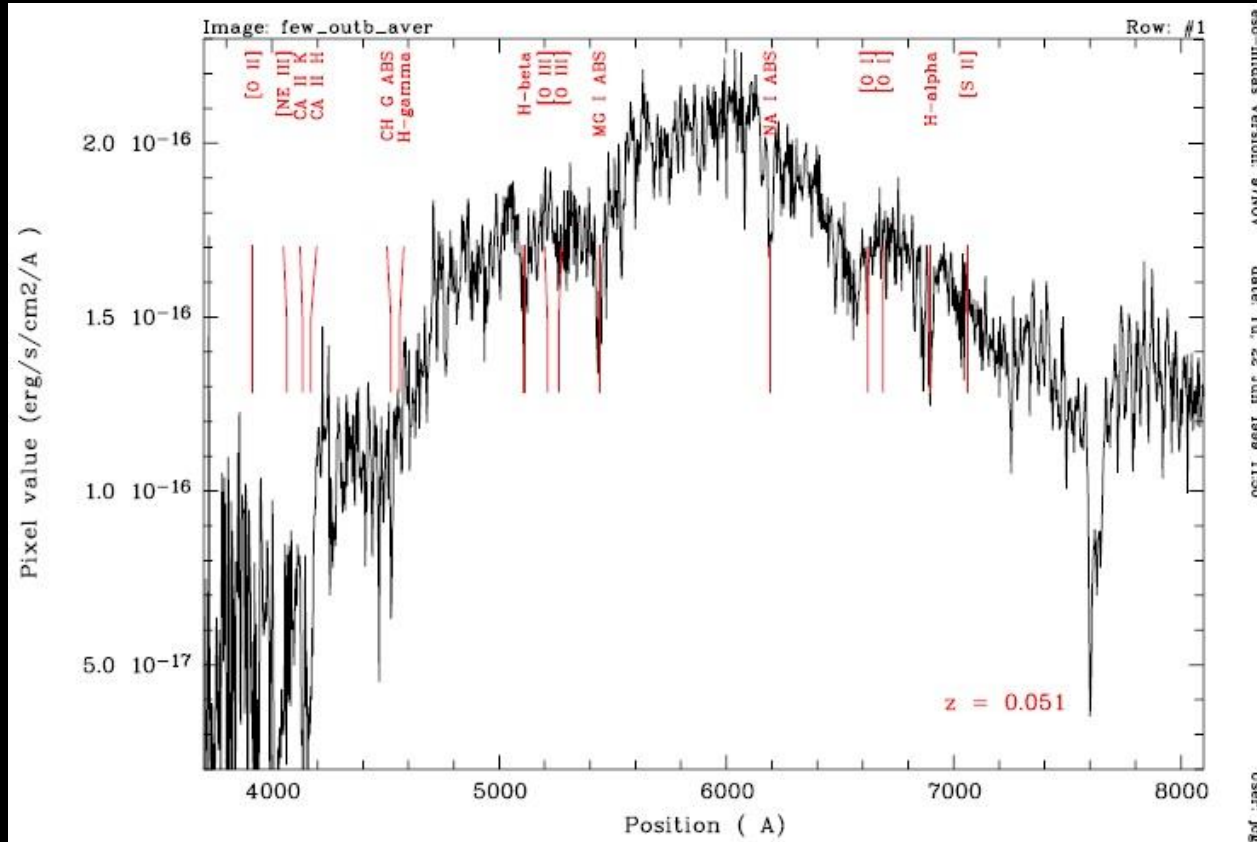
Optical Counterpart

- Image taken with OmegaCam



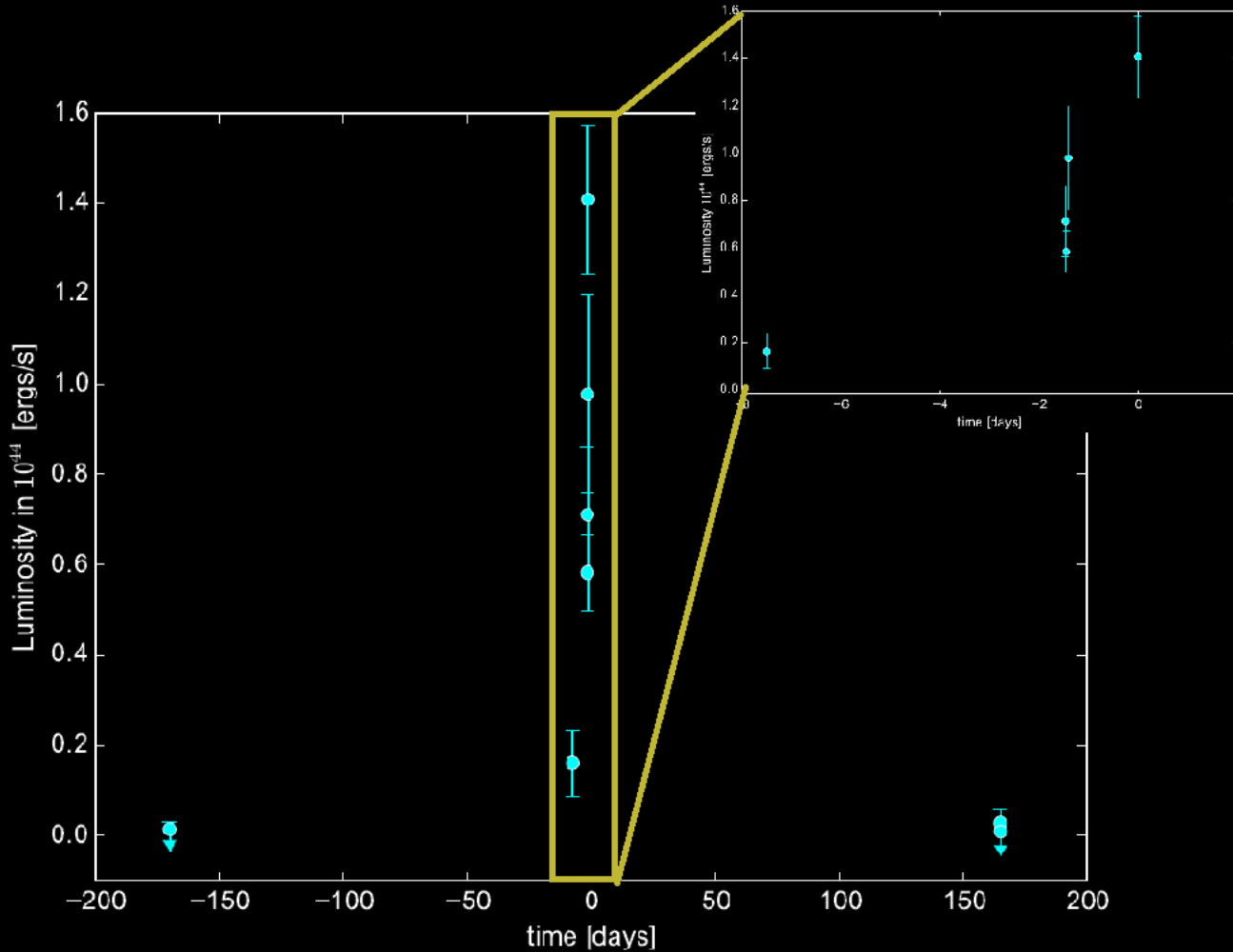
Prepared by Thomas Erben

Optical Spectrum



- Missing emission lines
- Redshift $z = 0.051$

Light curve



Increase

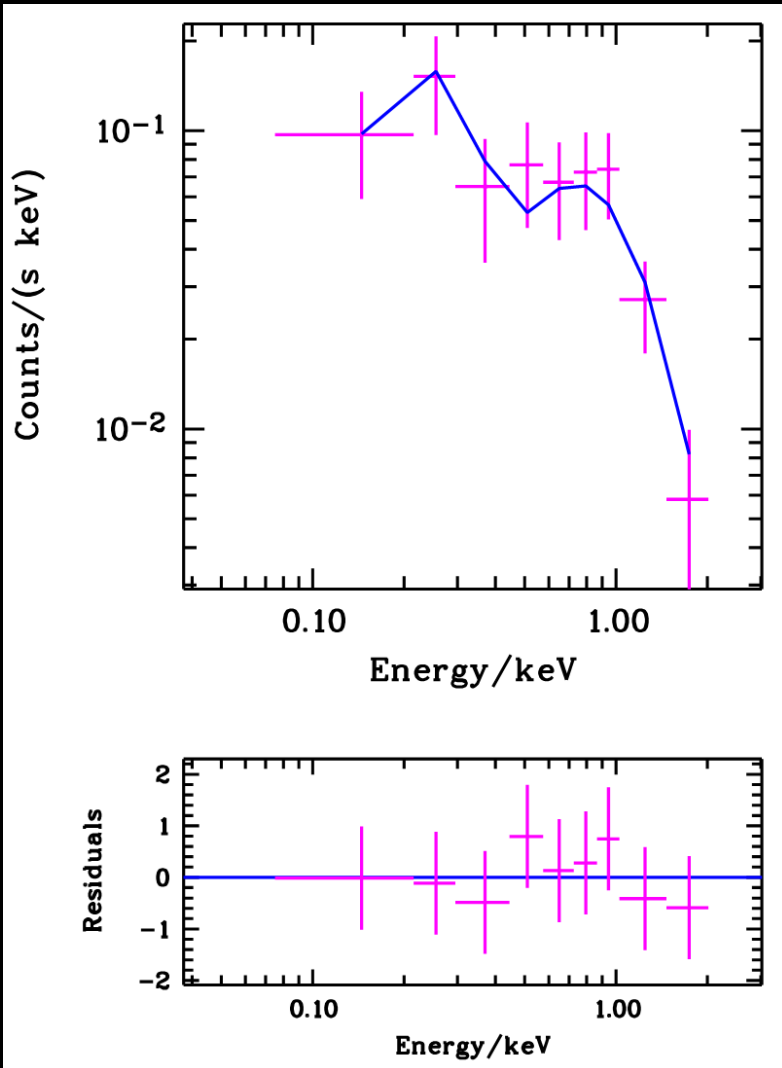
$$8.7 \pm 4.2$$

Decrease

$$143.7 \pm 17.7$$

$$L_{\max}(0.1 - 2.4 \text{ keV}) = (1.4 \pm 0.2) \cdot 10^{44} \text{ erg/s}$$

X-ray Spectrum



Power law index: -4.82 ± 0.66

Summary

- Very luminous ✓
- X-ray outburst lasting up to several months ✓
- Located at center of quiescent galaxy ✓
- Soft spectrum ✓

- Unlikely AGN, SN, GRB

→ Likely TDE

Fast luminosity increase