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Enhanced emission from GRB 110328A

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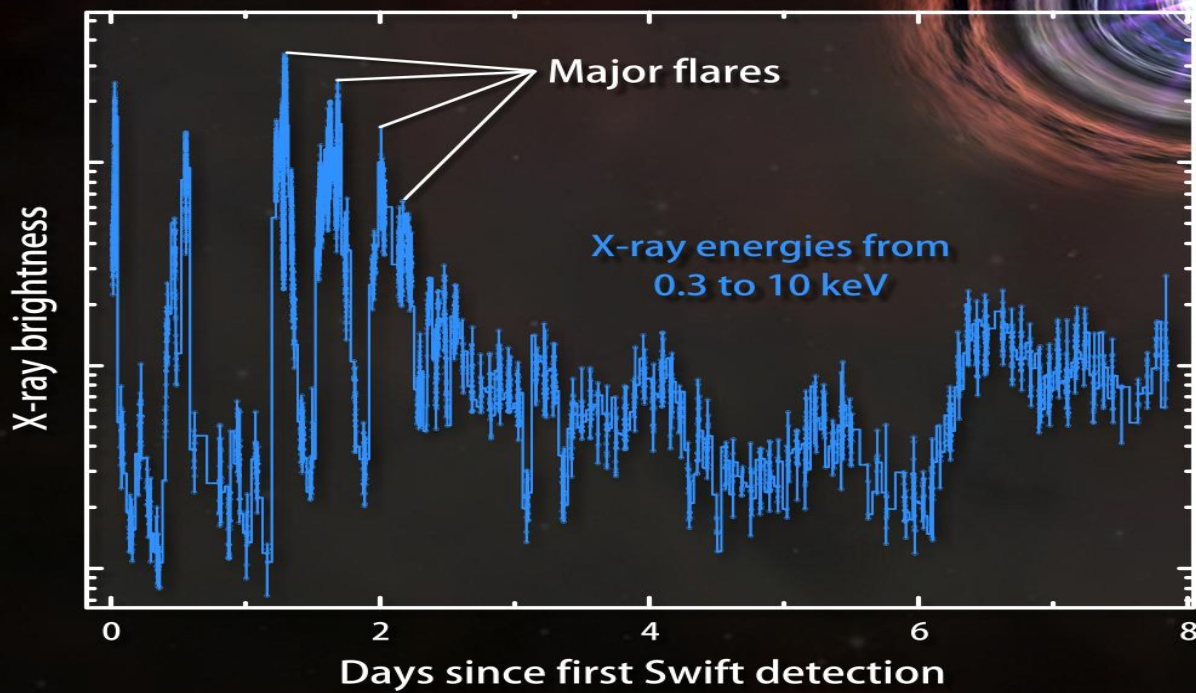
News

- On March 28, the Burst Alert Telescope onboard the Swift satellite triggered on a source when it erupted in a series of X-ray blasts.
- This event are also observed by Chandra and HST.
- The explosion which is catalogued as GRB 110328A, flared repeatedly in the following days.

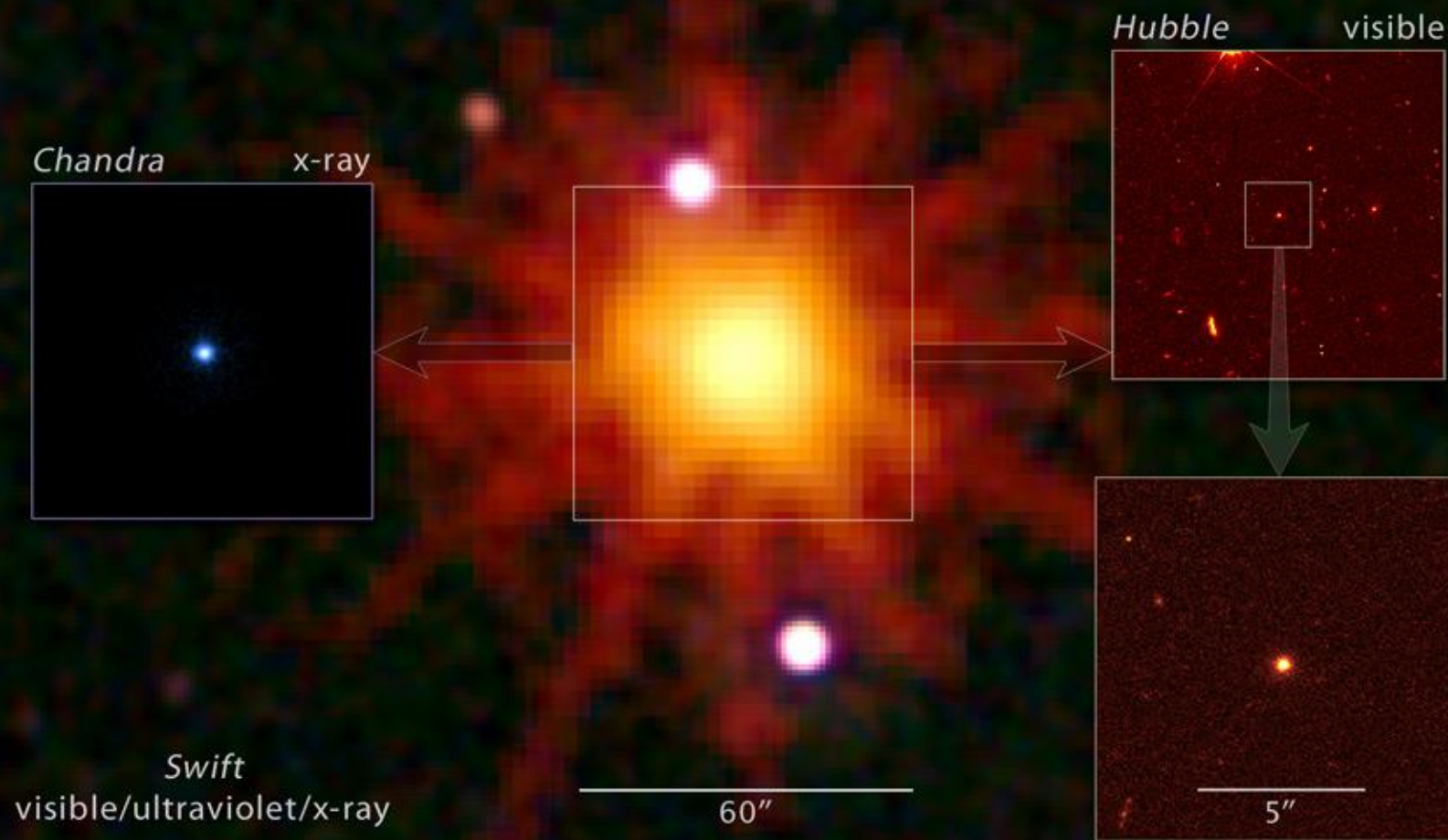
News

- The optical counterpart was determined by Gemini Telescope, and is a red galaxy at $z \sim 0.35$
- R.A. : 16h44m49s.91
Dec. : +57°35'00.6"
constellation: Drace

News



GRB 110328A

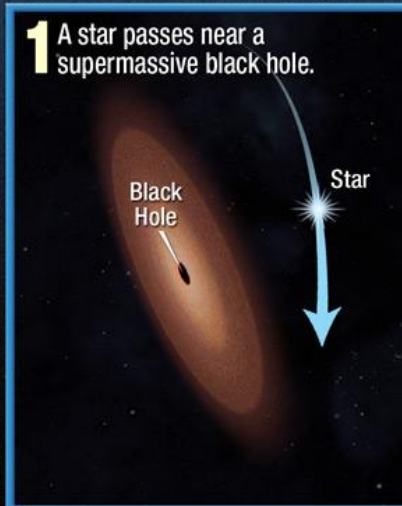


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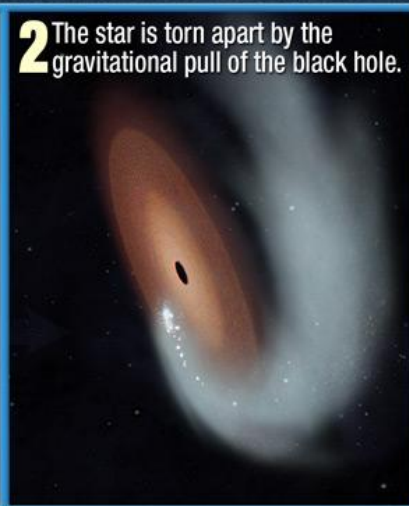
- The interpretation of this event could be due to the tidal disruption of a star approaching the central black hole.
- The mass of the SMBH in the galactic center $\sim 10^7$ solar mass
- The average luminosity for the first day emission is $L_x \sim 2.5 \times 10^{47}$ erg/s.
- L_x is about 2 order of magnitude larger the Eddington luminosity for the SMBH.
- The beaming effect should be considered, $\Gamma \sim 1000$, and this effect could be realized in the form of jets.

Black hole eats star

1 A star passes near a supermassive black hole.



2 The star is torn apart by the gravitational pull of the black hole.



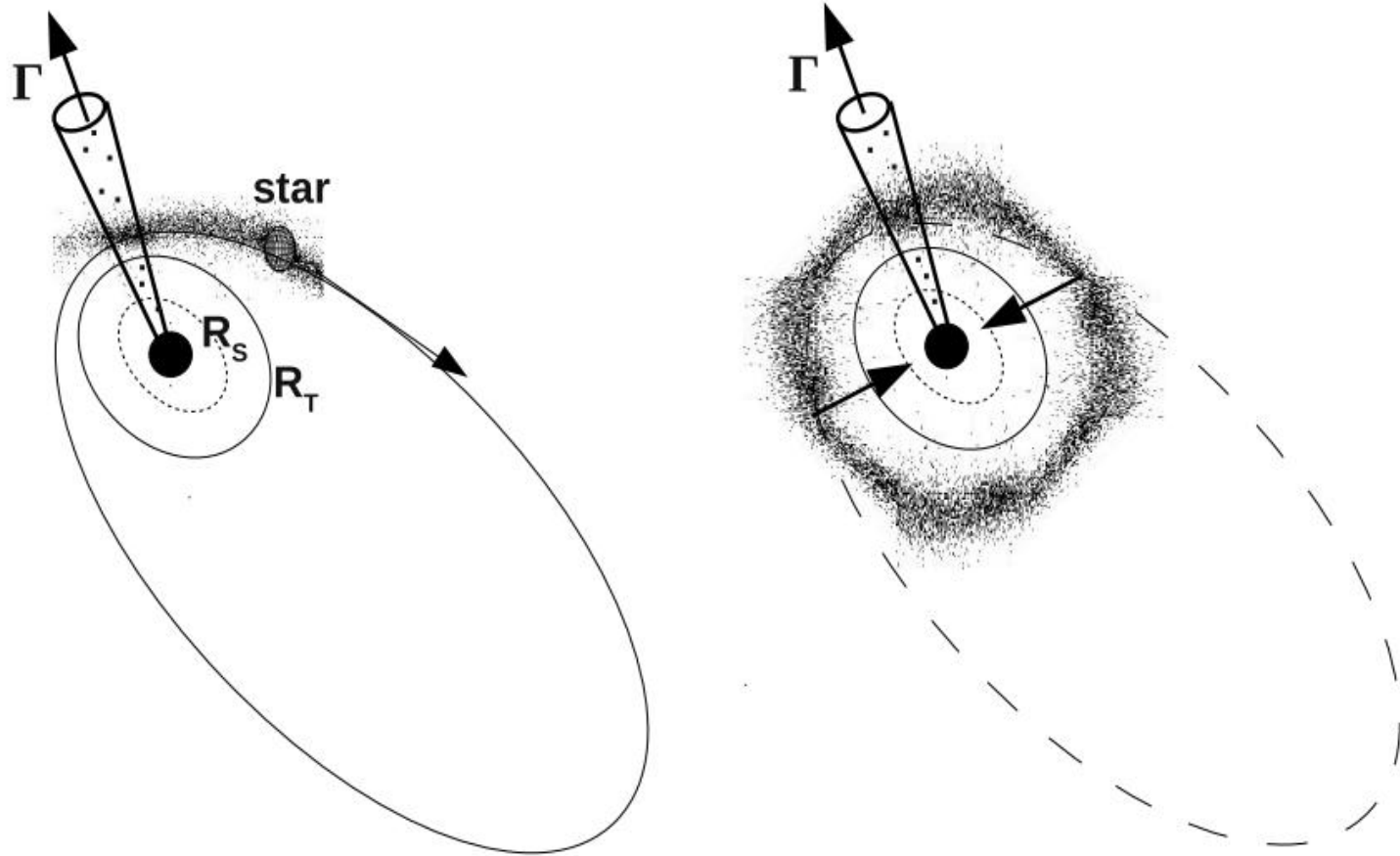
3 Fragments of the star feed the accretion disk around the black hole.



4 A narrow, powerful beam of radiation blasts toward Earth along the black hole's spin axis.



- While the timescale between the two major flares could be related to the orbital period of the star, the duration of the bright flaring periods that follow them are likely to be related to the infall time of the debris in the innermost orbits.



A solar-type star approaching a massive black hole on a elliptic orbit with pericentre distance R_T is distorted and spun up during, and then tidally disrupted, leaving behind a disk of debris that are accreted by the hole.

References

- Enhanced emission from GRB 110328A could be evidence for tidal disruption of a star

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- <http://hubblesite.org/newscenter/archive/releases/2011/10/full/>
- <http://www.nasa.gov/topics/universe/features/star-disintegration.html>

>>Thank You<<