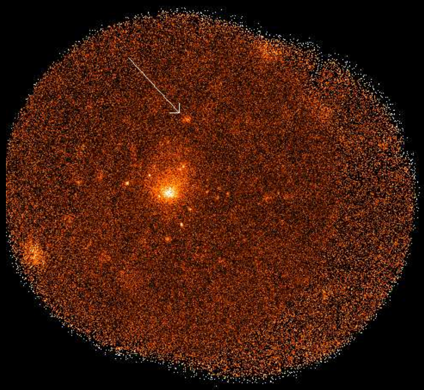
Discovery of an X-Ray Outburst in an Optically Non-Active Galaxy

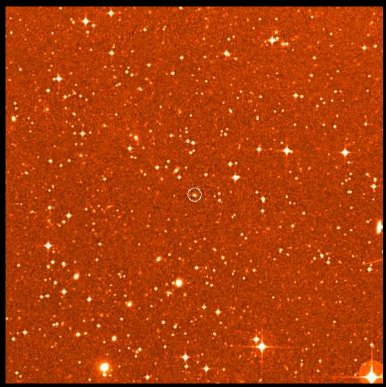
Thomas H. Reiprich[1] & Jochen Greiner[2]

[1] Max-Planck-Institut für extraterrestrische Physik, D-85740 Garching, Germany, reiprich@mpe.mpg.de
[2] Astrophysical Institute Potsdam, D-14482 Potsdam, Germany, jgreiner@aip.de

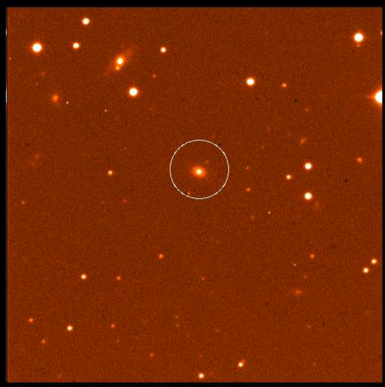
ROSAT PSPC image of the serendipitiously detected outburst source (arrow) and a galaxy cluster. Image scale 2.5 deg.

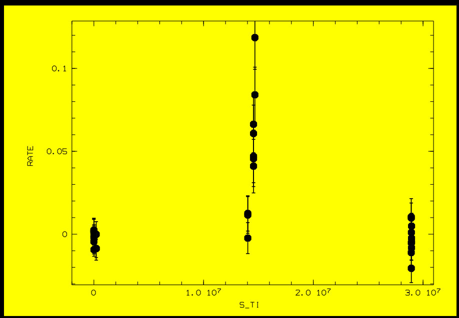


DSS optical image taken 16 years before the X-ray outburst with overlaid PSPC error circle. Box length 15 arcmin.

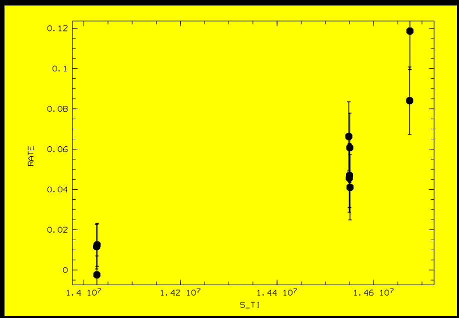


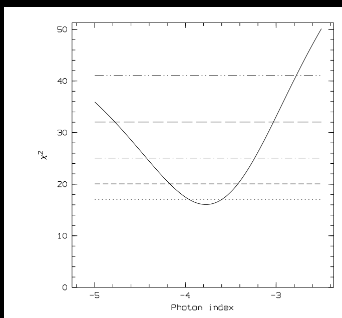
Danish 1.5m telescope, La Silla, image taken 6 years after the X-ray outburst. Box length 3.3 arcmin.



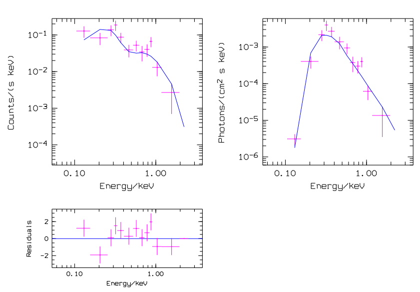


Left: Light curve of 5 PSPC observations of the outburst source. RATE in cts/s and S_TI in s. Time intervall 1 year.
Right: Blow up of the light curve during the burst. Time intervall 1 week.

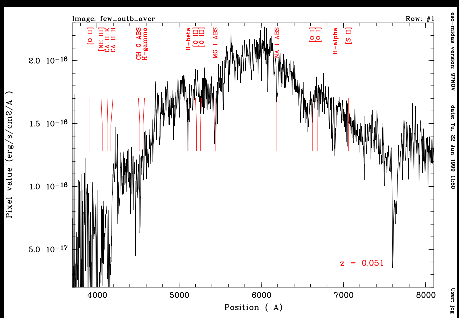




1 to 5 sigma errror range for the photon index of the power law fit.



Power law fit to the PSPC spectrum of the source during the outburst.



Spectrum of the anonymous optical counterpart taken 6 years after the outburst.

Observed properties to be explained by outburst scenarios:
1) Timing characteristics, especially the rise in X-ray count rate of a factor of ~ 10 within 7 days.
2) Soft X-ray spectrum ($-4.4 <$ photon index < -3.2).
3) Giant peak X-ray luminosity ($\sim 10^{44}$ erg/s).
4) Optical counterpart with no signs of activity.