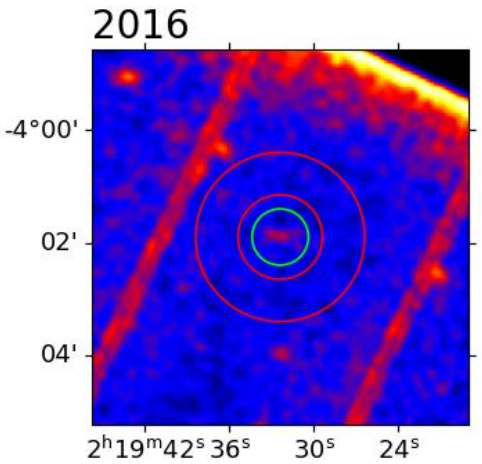
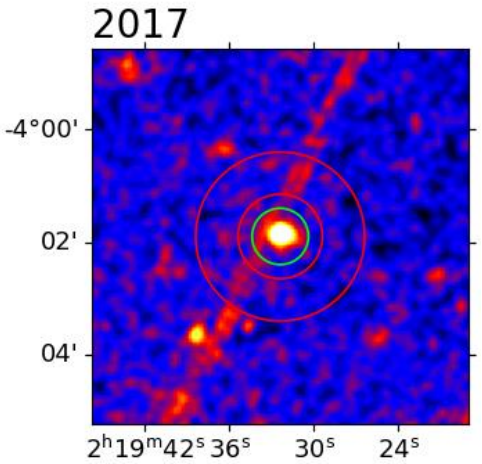
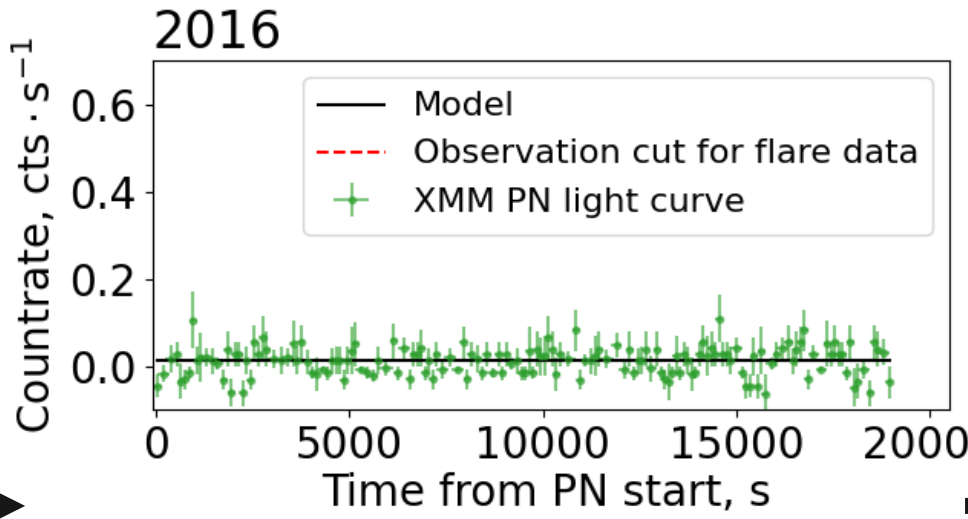
Superflare of a Sun-like star observed with XMM-Newton and SRG/eROSITA

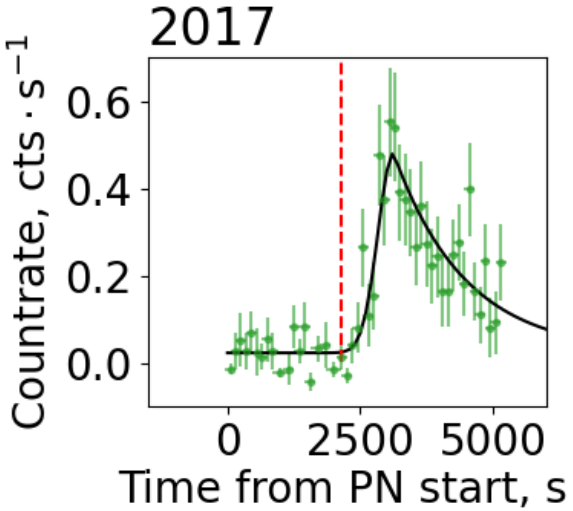
ArXiv: 2408.07442

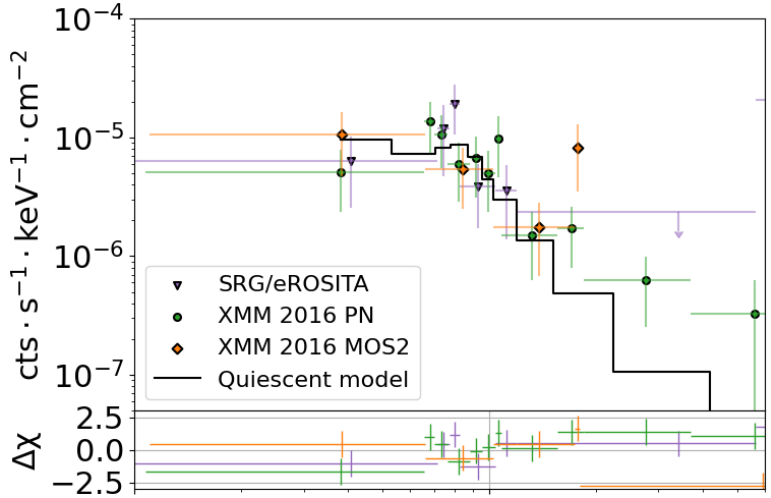
Mukhin Andrey (corr. author, **amukhin@cosmos.ru**),
Krivonos R., Bikmaev I., Gorbachev M., Khamitov I., Sazonov S., Gilfanov M., Sunyaev R.

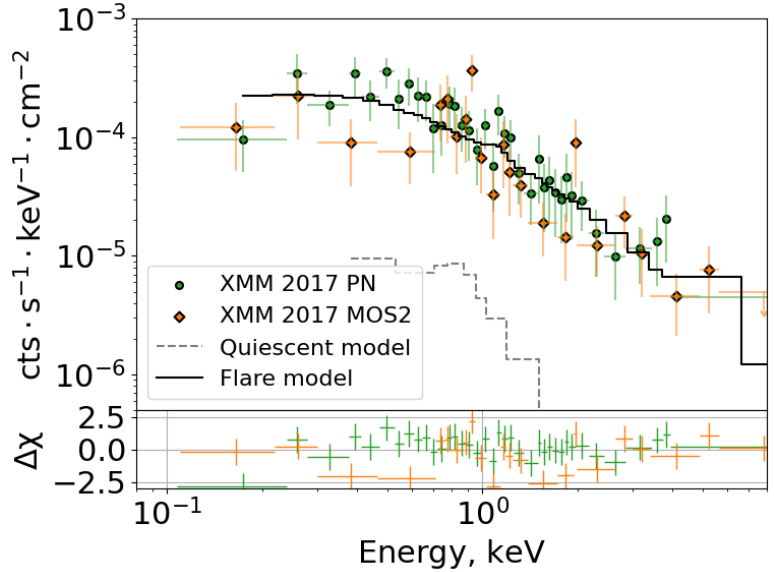












Superflare of a Sun-like star observed with XMM-Newton and SRG/eROSITA

ArXiv: 2408.07442

Mukhin Andrey (corr. author, **amukhin@cosmos.ru**),
Krivonos R., Bikmaev I., Gorbachev M., Khamitov I., Sazonov S., Gilfanov M., Sunyaev R.

Gaia DR3

$$\text{Distance} = 347 \pm 5 \text{ pc}$$
$$T_{\text{eff}} = 5736 \pm 7 \text{ K}$$
$$R = (1.04 \pm 0.01)\ R_\odot$$
$$M = (1.0 \pm 0.4)\ M_\odot$$
$$L = (1.19 \pm 0.04)\ L_\odot$$

G type star

$$L_{XQ} = (1.5 \pm 0.4) \times 10^{29} \text{ erg s}^{-1}$$
$$L_{XF} = (5.5 \pm 0.6) \times 10^{30} \text{ erg s}^{-1}$$

in 0.3–4.5 keV

X-ray superflare

$$E_X = (1.7 \pm 0.2) \times 10^{34} \text{ erg}$$
$$E > 10^{33} \text{ erg}$$

Rotational period

$$P_{\text{rot}} = 3.2 \pm 0.5 \text{ days}$$

Starspot area upper limit

$$A/A_{1/2\odot} < 0.4\ \%$$
$$A_{1/2\odot} = 3 \times 10^{32} \text{ cm}^2$$

Single G star or binary?

Gaia DR3 + APOGEE-2 DR17