

Mehdy Lefkir

M2 Astrophysique Sciences de l'Espace et Planétologie (ASEP) Toulouse

Stage de 6 mois de puis janvier 2022 à l'IRAP à Toulouse



A hard look at the X-ray variability of NGC 7582

Elias Kammoun et Didier Barret

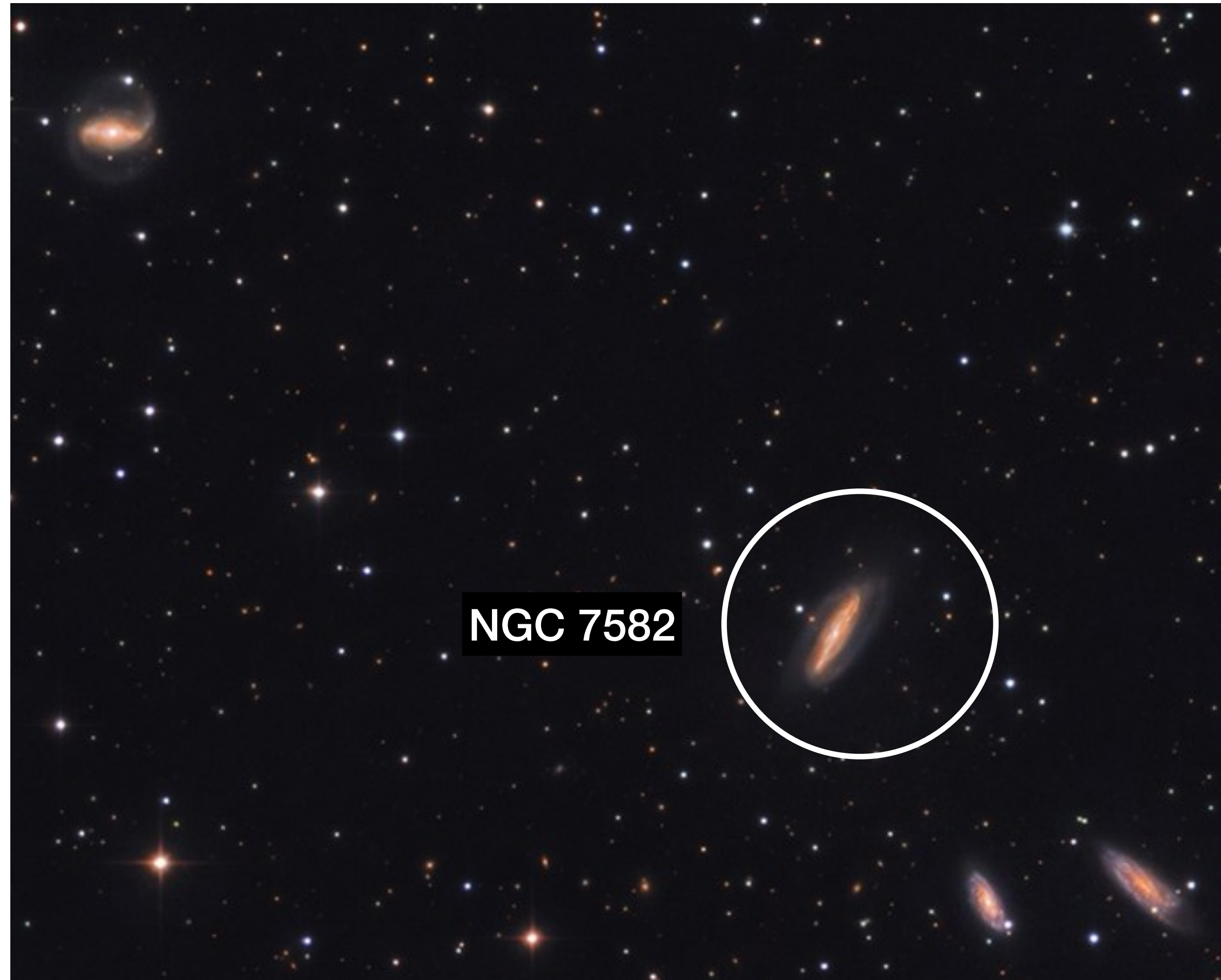
NGC 7582



A hard look at the X-ray variability of NGC 7582

Seyfert 2 galaxy

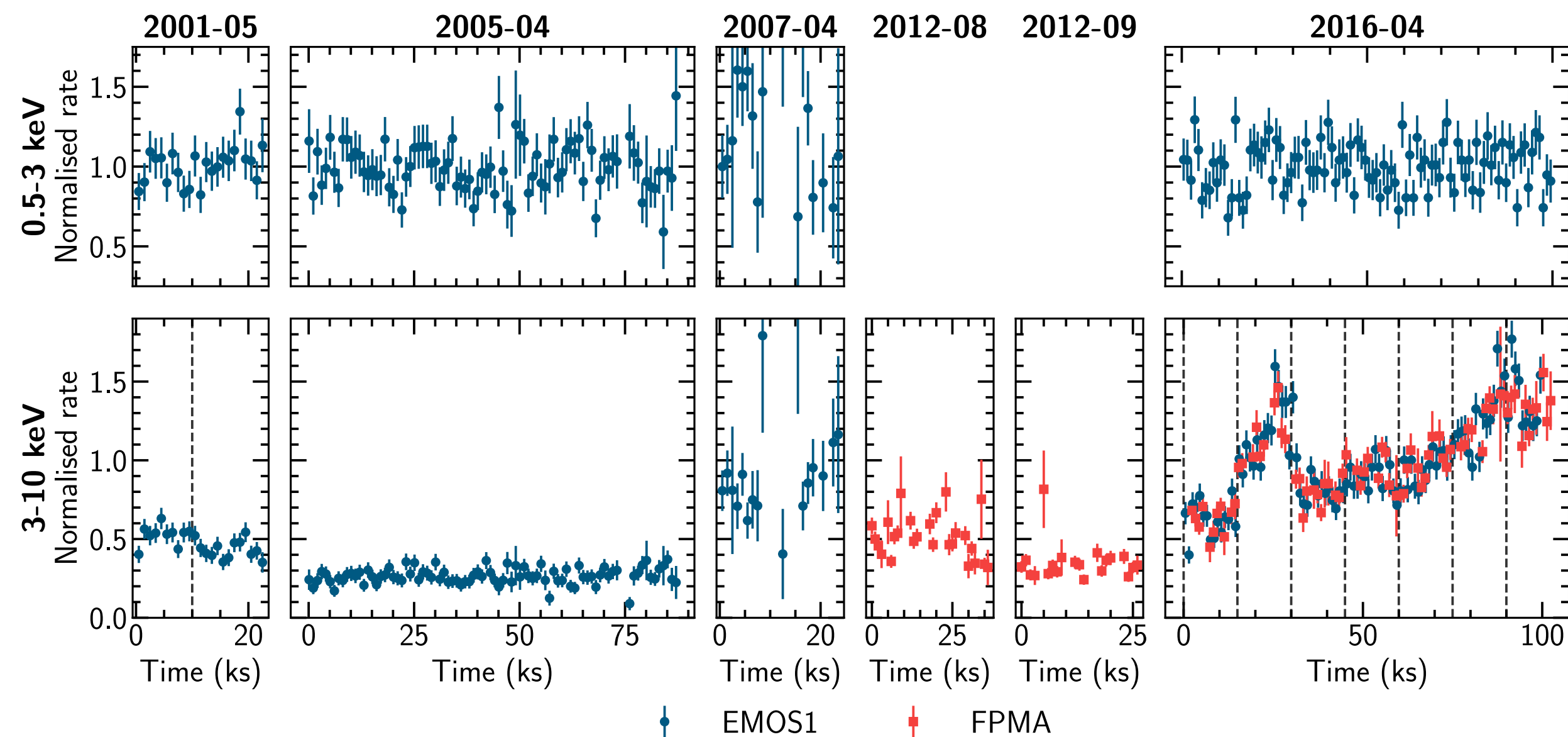
« Changing-look » AGN : Seyfert → Seyfert 1 → Seyfert 2 in 1998 (optical observation)



X-ray observations
XMM and NuSTAR
Between 2001 - 2016

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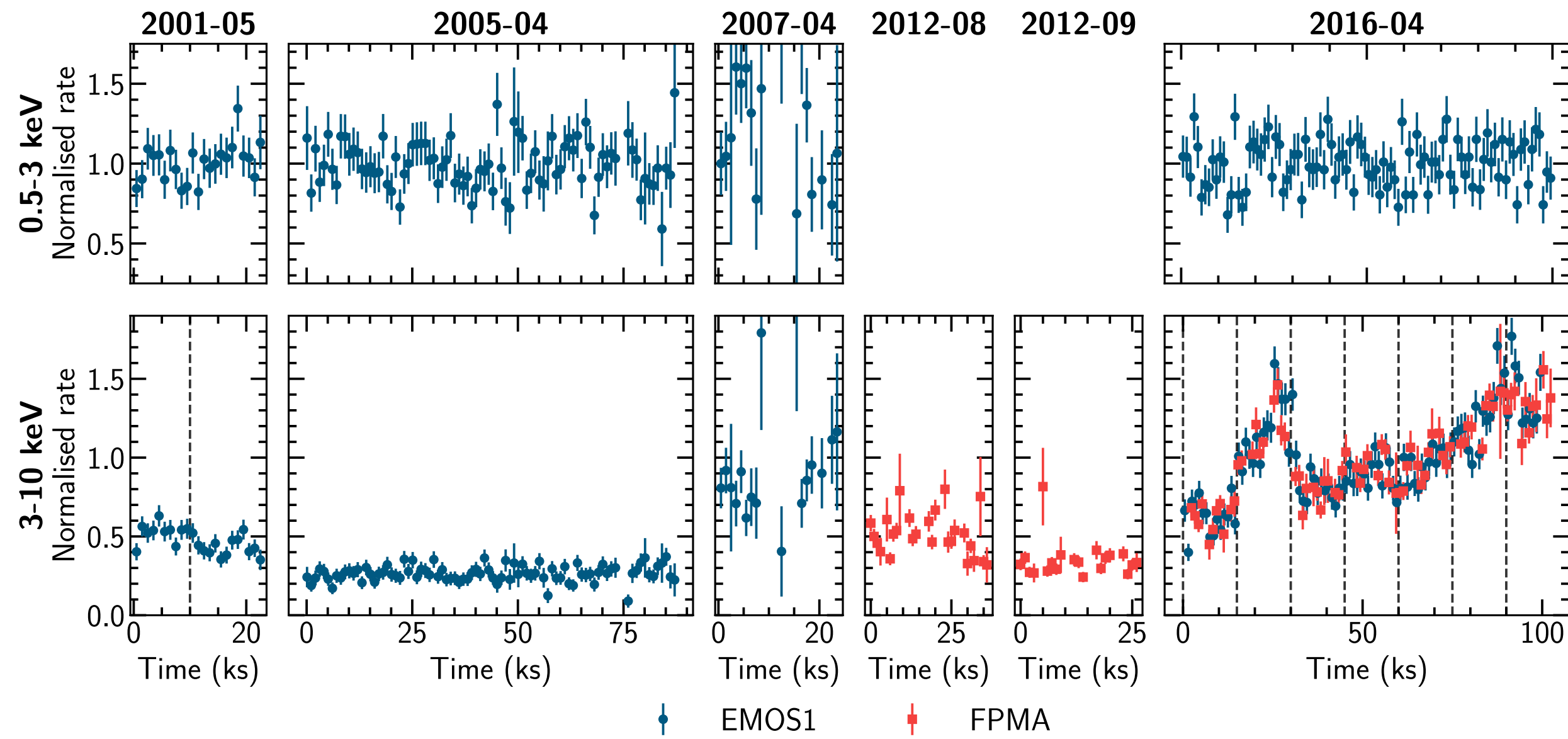


Study short term + long term variability

- 1) **Light curve in hard X-ray**
- 2) Time resolved spectral analysis
 - A. Extract the spectra
 - B. Fit the spectra with different model

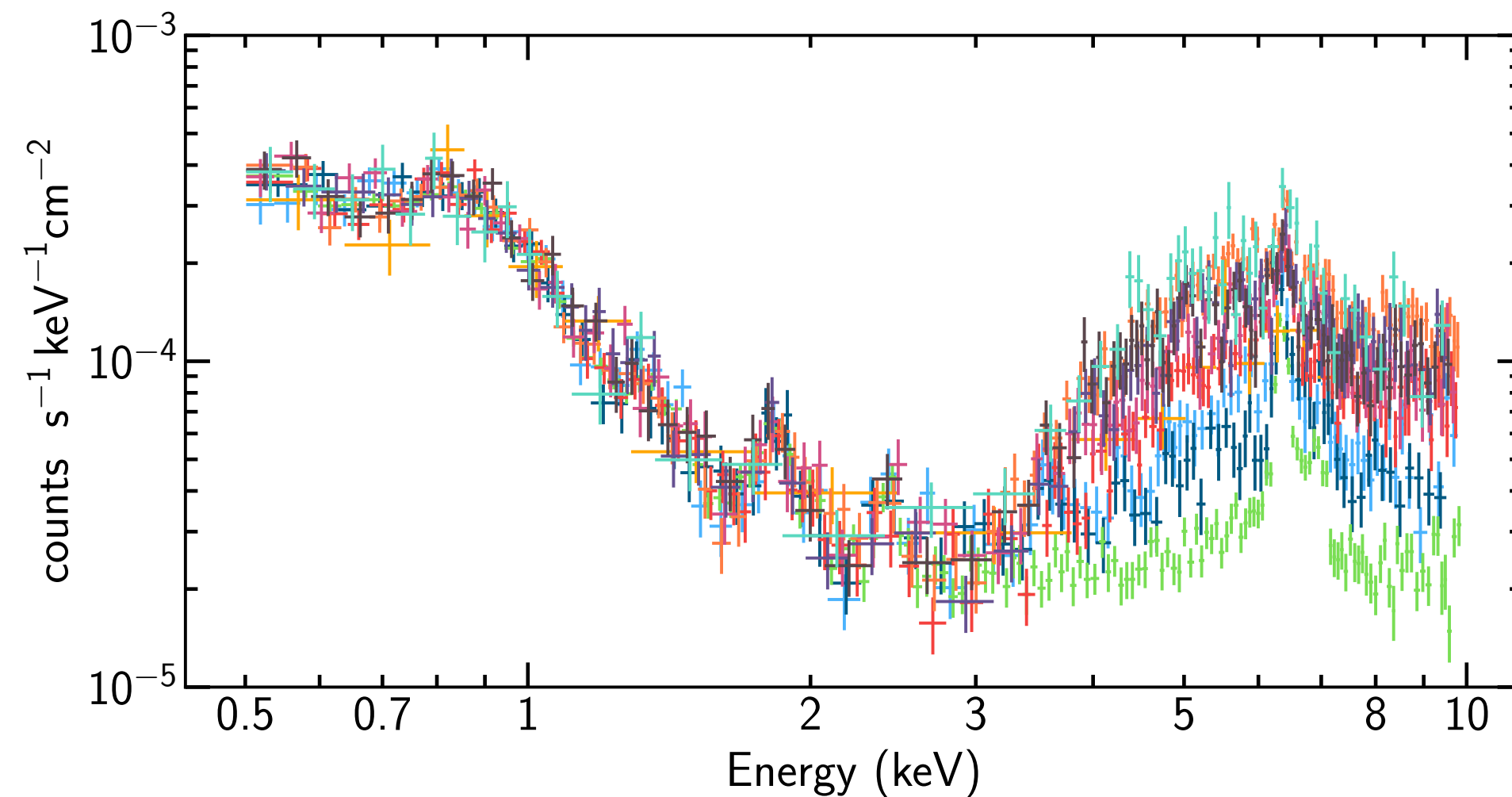
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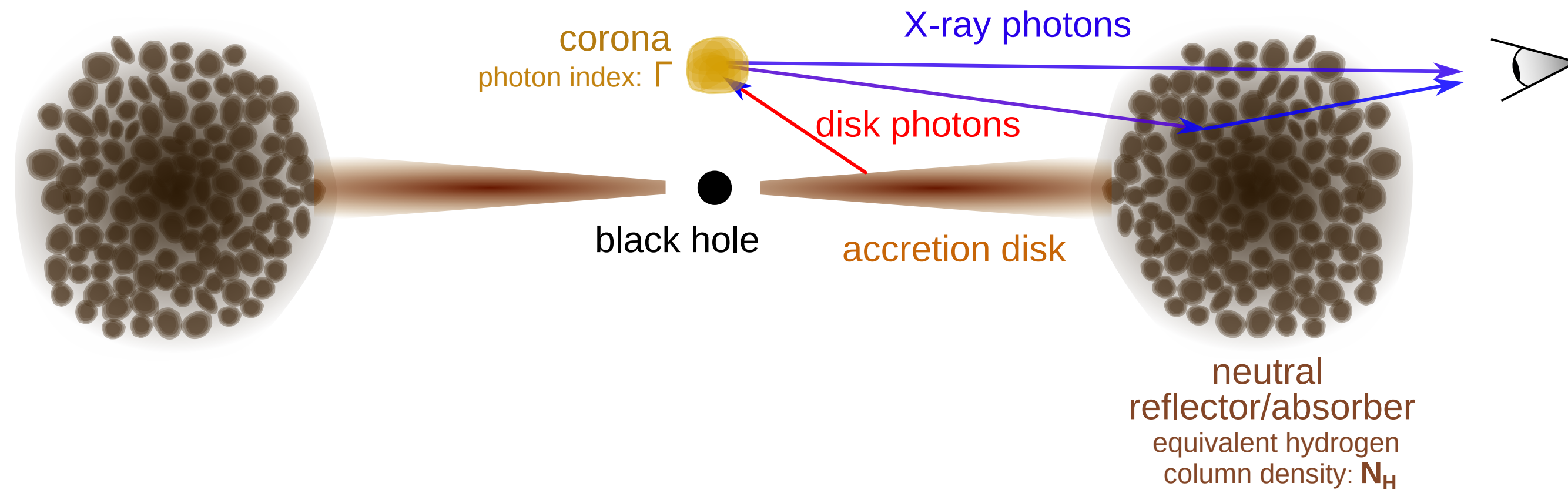
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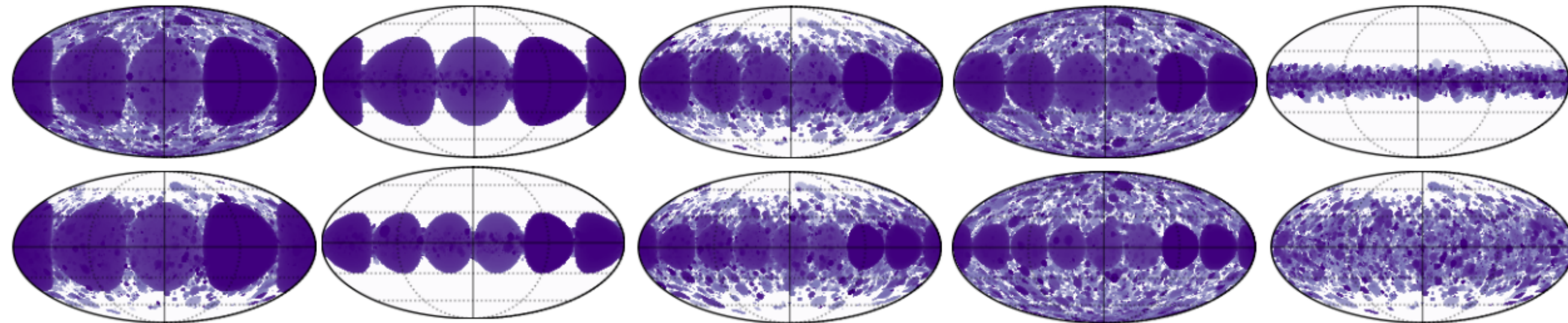
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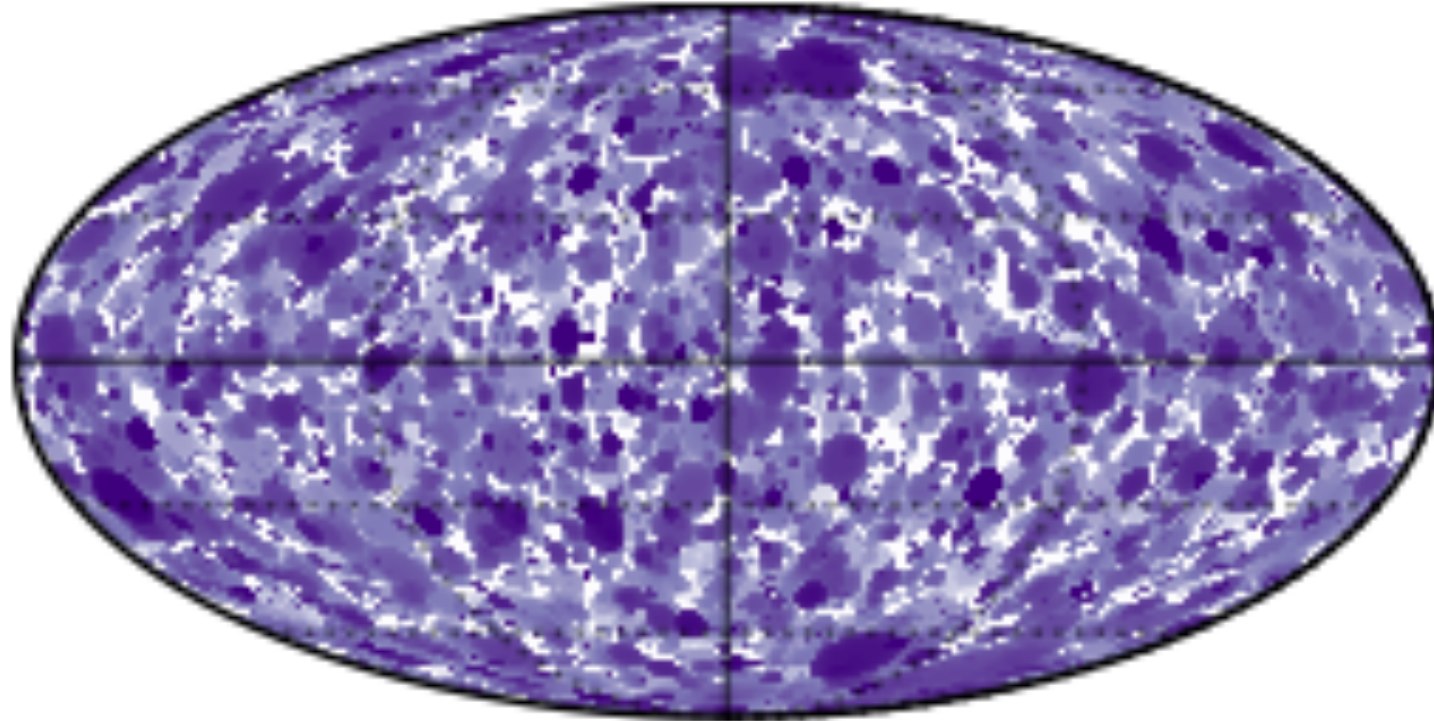
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Léna Arthur

- 2nd yr PhD at APC Astroparticle and Cosmology (Paris)
 - Fabien Casse & Alexis Coleiro
 - **Electromagnetic counterparts to the merger of supermassive black hole binaries**
- Simulation of the gravitational influence of a second SMBH on the accretion disk of a SMBH
- First stages of the merger

MIMOSA: Multi-Messenger Observations of Supermassive Accreting systems

MIMOSA team at APC laboratory

Simulation of accreting matter around a supermassive black-hole binary

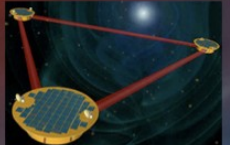
Design synergies between LISA and ATHENA

Synthetic observations at different epochs of the coalescence

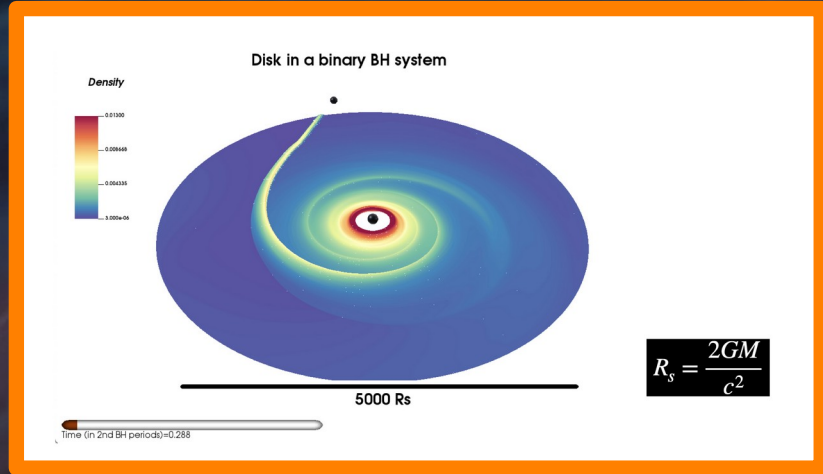
Prediction of observations with ATHENA in the X-ray band of the electromagnetic spectrum

Radiative processes
General relativistic ray-tracing code GYOTO

End-to-end simulator SIXTE



MIMOSA: Multi-Messenger Observations of Supermassive Accreting systems



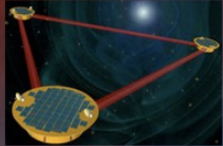
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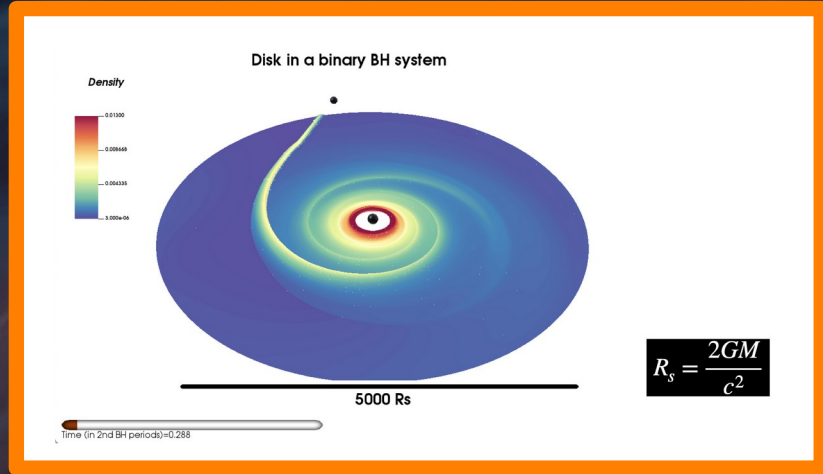
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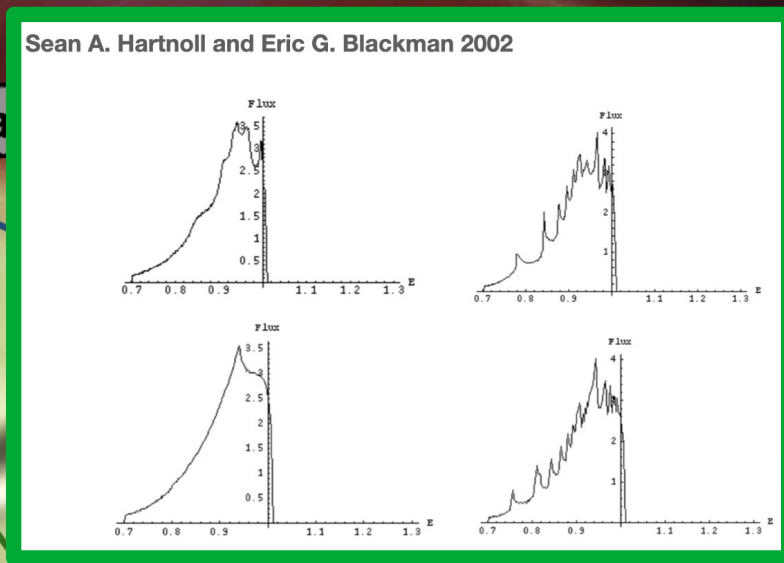
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