

Summary WG meeting First year plans eROCOM

Axel Schwope

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Object classes

1. Isolated compact objects
 - a. ~~WD~~
 - b. NS
 - c. BH (TT left the consortium)
 - d. (Sgr A* \rightarrow CCB?)
2. Accreting compact binaries
 - a. WD (CVs, DDs, Symbiotics, SSS, Novae, RN)
 - b. NS
 - c. BH
3. Misc
 - a. ULX (coordinate TDA-WG)
 - b. Unidentified FERMI sources (involve AGN-WG)
 - c. Flaring objects (coordinate TDA-WG)
 - d. DM searches

Isolated compact objects:PV

- M7 or one of the 3 Musketeers

(Schwope, Pires, Haberl, Becker, Werner, Suleimanov)

- Spectrum
- Light curve
- Timing

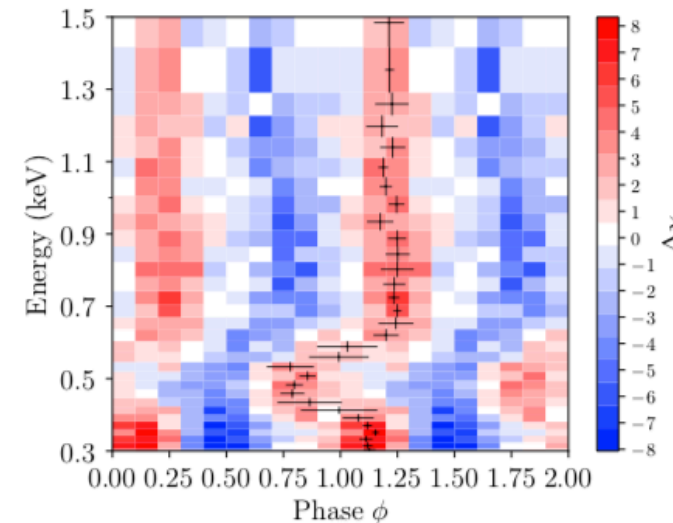
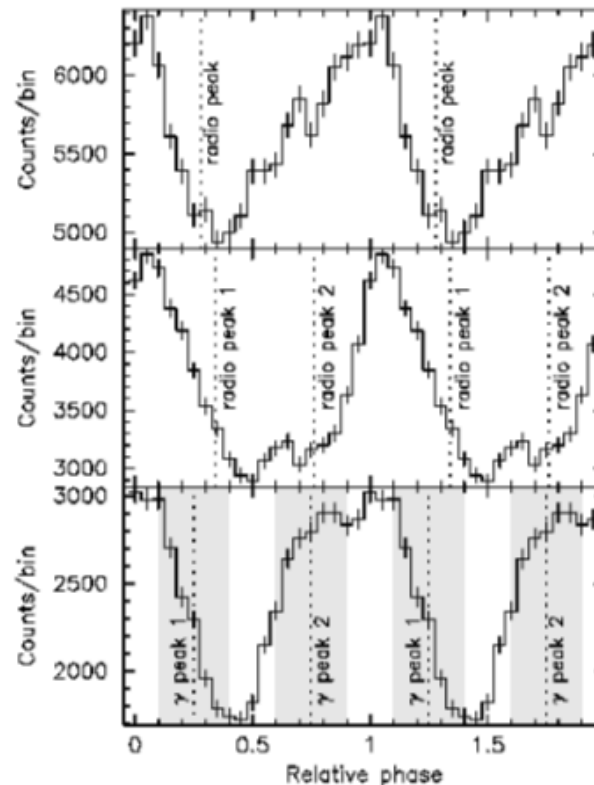


Figure 10. Binned phase–energy plot for *XMM-Newton* events extracted from the source region. The bin color represents $\Delta\chi_{i,j}$ (red - positive, blue - negative) values defined in equation (6). The overlaid error bars represent the peak of the pulse profile in each energy bin.

Isolated compact objects: eRASS:1

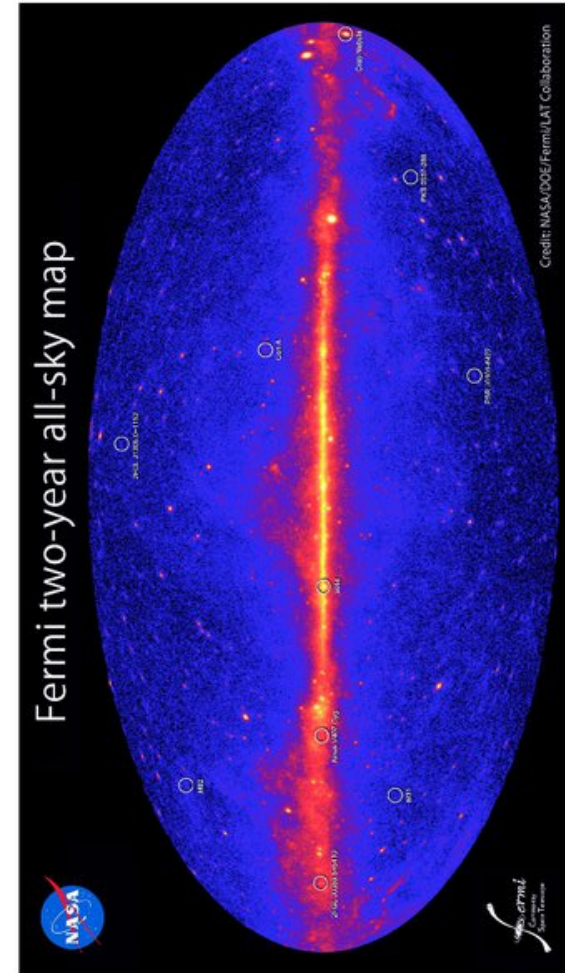
- Search for new INS in eRASS:1
(Schwope, + → DFG-FG PhD)
- Search for Counterparts of unidentified Fermi Sources using eROSITA
(Becker, Schwope, Haberl) → to be co-ordinated with WG AGN
- Constraining the Neutron Star Equation of State using eROSITA Data
Becker, Kramer (IEC), Fridolin Weber (IEC), Schwope
- Searching for X-ray Counterparts of Rotation-Powered Pulsars
Becker, Kramer (IEC), Schwope

IECs in preparation

Compact binaries: Goals

1. Accretion physics
2. Close binary evolution
3. SNIa progenitors
4. GW sources
5. GRXE synthesis via XLFs
 - a. CVs (DFG P3)
 - b. LMXBs (DFG P5)
 - c. HMXBs (DFG P5)

20 science projects were formulated in the WG (coordination)



XLFs of X-ray selected CVs

Schwope 2018

Current limitations:

- Small number in complete samples
→ eROSITA
- Uncertain distances
→ Gaia-DR2

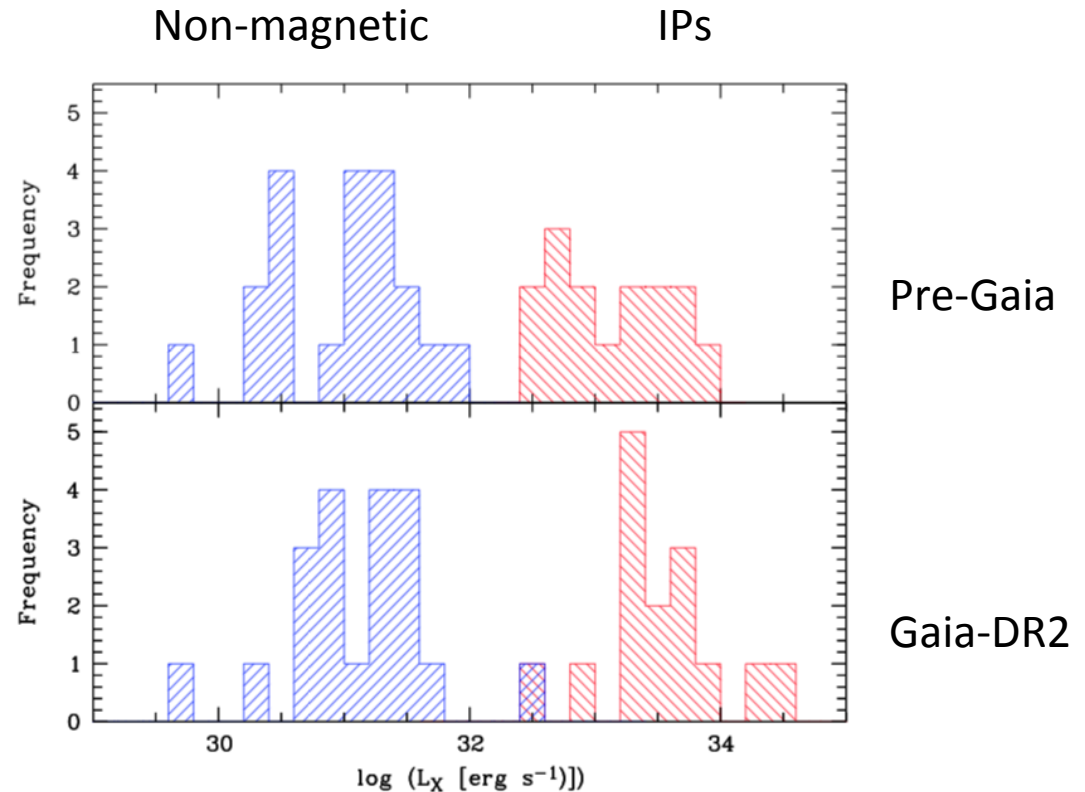
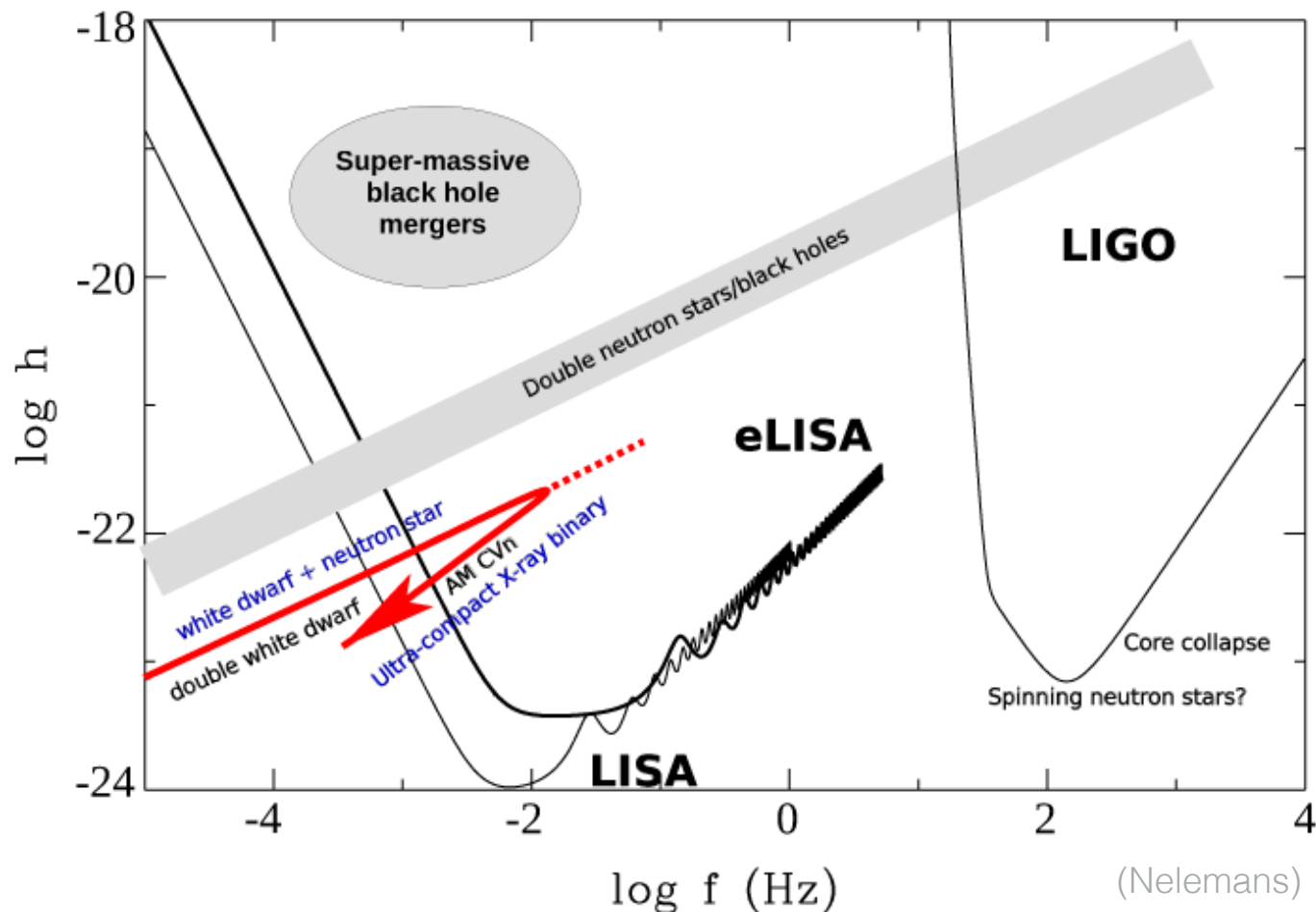


Fig. 2. Published (upper panel, adapted from Pretorius & Knigge 2012; Pretorius & Mukai 2014) and revised (lower panel) luminosity distributions of the RASS-CVs (blue-shaded histogram) and the Swift/BAT-selected IPs (red). The bin width is 0.2 dex.

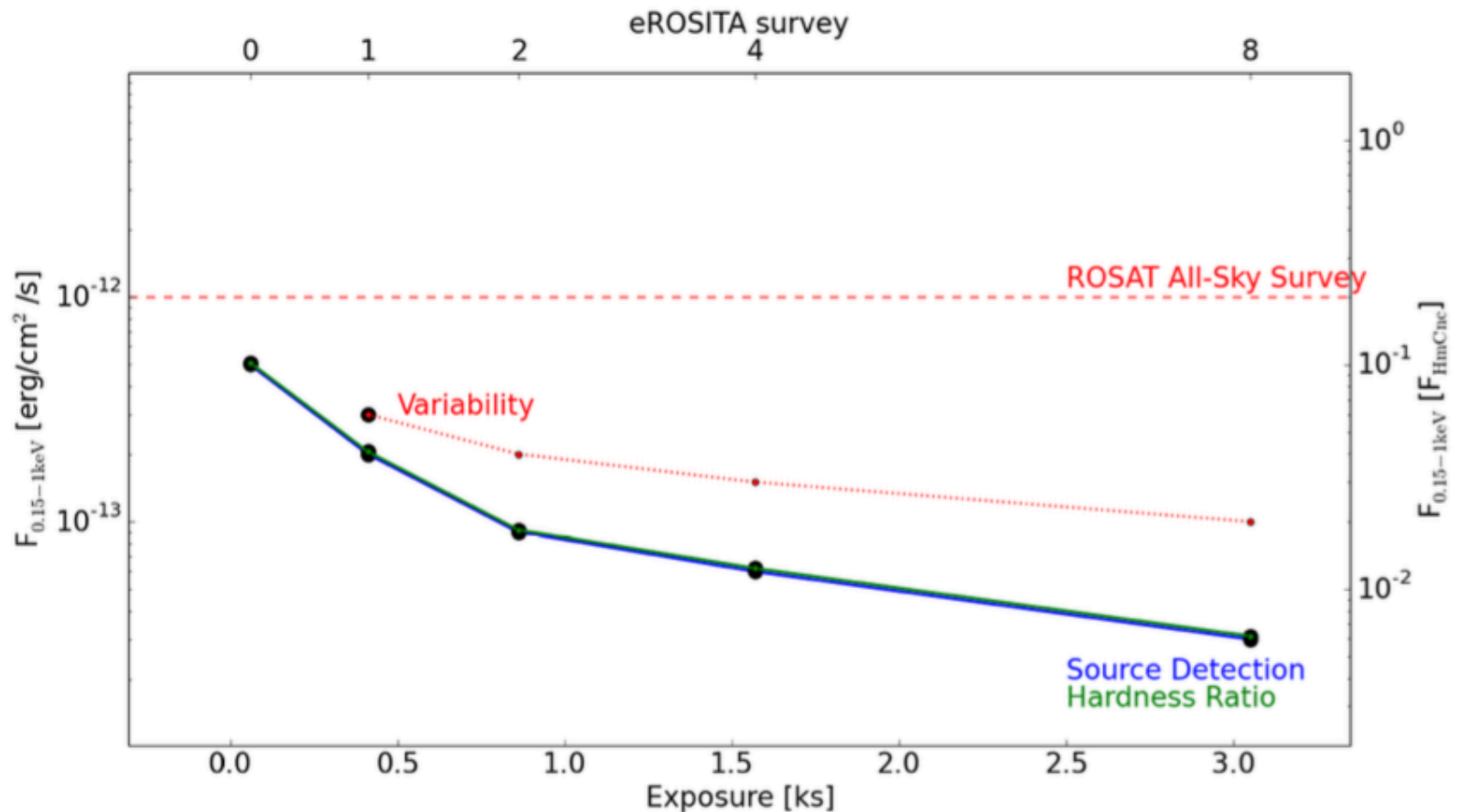
DDs & UCBs

The shortest period AM CVn stars will be the brightest reference sources for space-based gravity wave experiments.



DDs & UCBs

To which flux limit will eROSITA detect (and select) RXJ0806-like* sources in eRASS 0, 1, 2, 4 & 8?



Accreting Black Holes and Neutron Stars

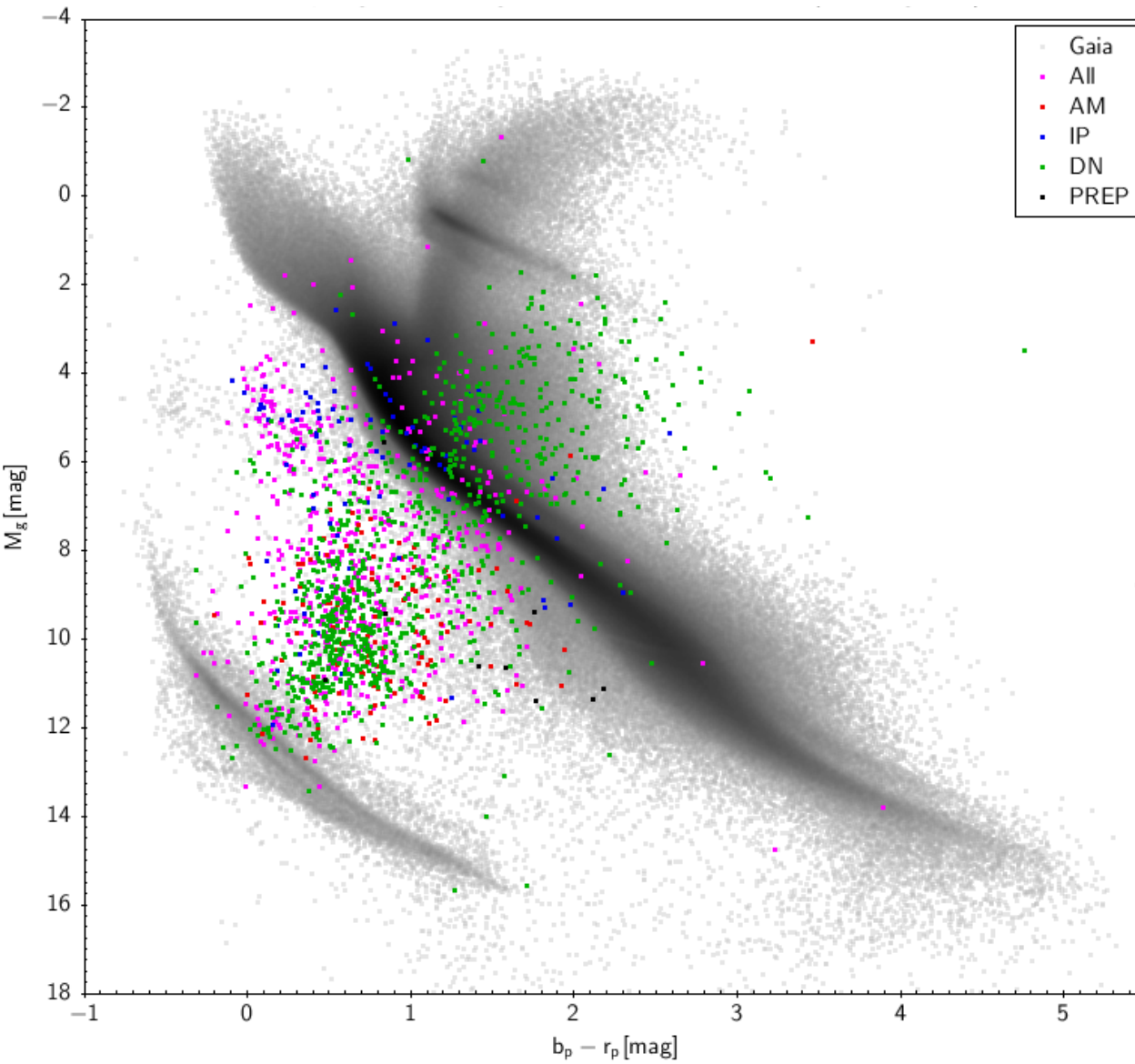
Objectives

- The main observational objective of the project is, therefore, **the detection, identification, and characterisation of the low luminosity population of XRBs in the Galaxy and Magellanic Clouds** → WG NG
- **Comparison with theoretical predictions based on the state-of-the-art population synthesis codes**

Required data:

- Project requires eRASS source lists incl. fluxes/variability flags, etc.
- Counterparts can largely be identified in existing catalogues (bright stars!), spectroscopic follow-up still required for many.
- **Identification can start with the start of the survey!**
- HMXBs easier to identify and arguably more interesting as SFR tracer in other galaxies.
- **will cross-match 1st year catalogues with optical**
- Most of the counterparts have GAIA distances/limits

Follow-up CVs in SDSS5



CV masterlist: #6000
RK, SDSS, CRTS
Missing:
ATLAS, PTF, ZTF

Every source between
the MS and the WD-
track has good
chances of being a CV

Challenge:
Catalogue matching
close to the galactic
plane

Resources

- Wiki: 25 Members – up to date
- Wiki: 2 IECs – up to date, more proposals expected (radio follow-up)
- Science projects: still need some coordination among WGs
→ wiki
- PV rules: Minor comments only, could not discuss DE participation in RU PV targets (targets unknown); did not further discuss potential De/Ru collaborative projects
- Science funding:
5PhD + Postdoc applied in DFG-FG