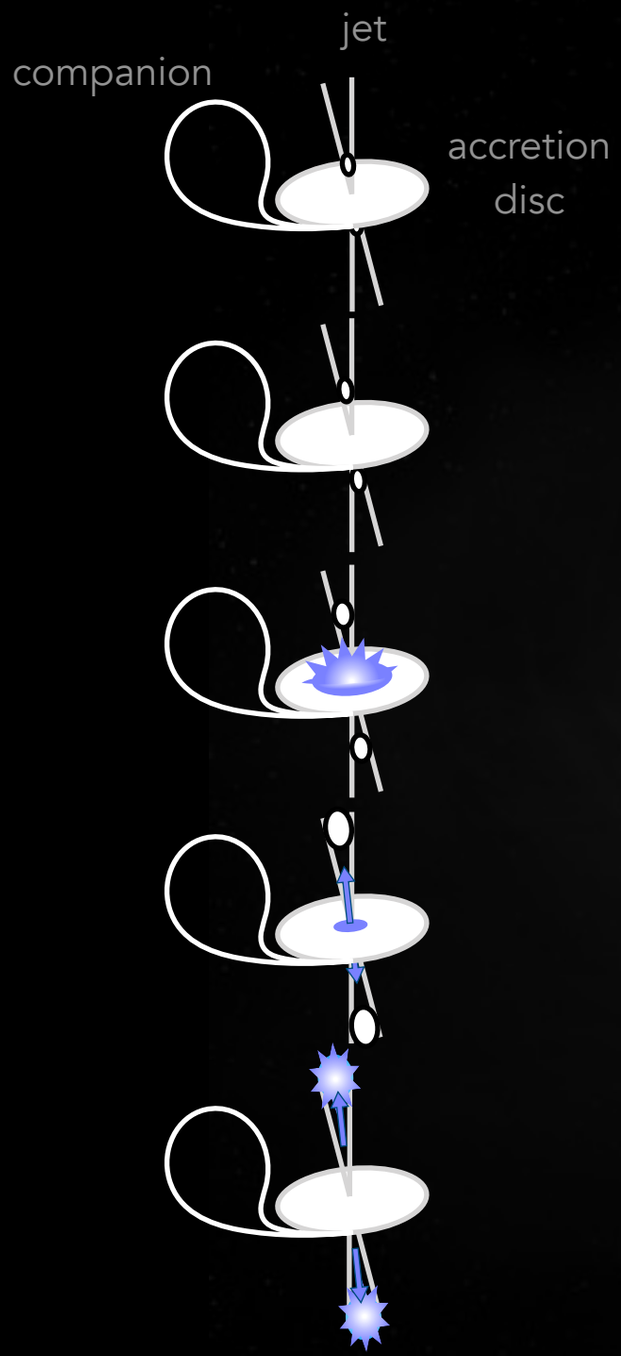
EJECTA: EXTREME JETS FROM COMPACT ACCRETORS

Connected to *scheda* MULTIBLACKNEUTRONS

PI: SARA E. MOTTA



Motta & Fender 2019

Neutron star X-ray binaries show Ultra Relativist Flows (URFs), outflows that are among the fastest phenomena known. Their nature remains obscure as they cannot be directly observed, although they may play an important role in the feedback on the environment, especially if found also in black hole systems. EJECTA aims to unveil the nature of URFs, and to search for their presence around Stella mass black holes.

SCIENCE GOALS

- Constrain properties of URFs in Sco X-1
- Determine if URFs properties depend on host systems
- Search for URFs in black hole systems
- Clarify the contribution of URFs to feedback

Progresses

Activities and deliverables

Funding requested for:	Members:
Travelling	Sara E. Motta (P.I.)
Collaborations	Ph.D. Student
Hardware	

Publications:

Fender, Mooley, Motta et al. 2023 *(2023MNRAS.518.1243F)*

La Monaca et al. submitted. - First IXPE polarimetry results on Sco X-1

Fender & Motta in prep. - Slow and fast jets in X-ray binaries

Jose Lopez-Miralles & Motta in prep. -

Motta et al. in prep. - VLBI obsebrations of the jets in Sco X-1 and GRS 1915+105

MiniGrant supported visitors:

- Pikky Atri (ASTRON, NL)
  Visit including Colloquium on March 14th, 2023
- Jose Lopez-Miralles (University of Valencia, Spain)
  Visit in July 2023
- Joe Bright (University of Oxford, UK)
  Visit in July 2023

Meetings and visits:

- Life begins at 40! *(Bologna, May 2023)*
- ThunderKAT 5-years workshop *(Oxford, September 2023)*
- Visit to Oxford University *(Oxford, September 2023)*

Observations approved and executed:

- Sco X-1 EVN data *(September 2023)* - ***PI***
- Sco X-1 e-MERLIN data *(September 2022)* - ***PI***
- GRS 1915+105 e-MERLIN *(August-November 2023)* - ***PI***
- GRS 1915+105 VLA *(October 2023)* - ***PI***

Observations requested:

- Cyg X-2, VLBA observations - **co-I**

Hardware:

- Laptop purchased for Ph.D. Student

CRITICALITIES

- Delayed start of the project

  Funding became available 6 months after the funding was awarded.

- Loads of data, but limited man-power.

  A Phd student was expected at the beginning of year 1, but only joined in November 2023

- EJECTA must be expanded

  The project was planned and proposed as a pilot. Preliminary results show that EJECT must have a more ample breath, and thus MUST be expanded.

Progresses have been slower than ideal

Observing Proposals were ***all*** successful, but data are being processed slowly

More funding and man power required

Requires a different funding scheme: Large Grant or GO/GTO, especially for data exploitation.