# Electromagnetic radiation signatures from turbulent reconnection in black hole accretion flows

Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

| Dataset name / ID | Description | New or reuse | Digital or Physical data | Data Type | File format | Data volume | Physical volume |
|---|---|---|---|---|---|---|---|
| D1 | Magnetohydrodynamical data of black hole accretion | N | D | N | HDF5 and custum binary data format | >5TB | NA |
| D2 | Particle-in-cell data of black hole accretion | N | D | N | HDF5 | >5TB | NA |
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If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

N/A.

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number.

- No

Will you process personal data? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven or UZ Leuven privacy register number (G or S number).

- No

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)? If so, please comment per dataset or data type where appropriate.

- No

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- No

**Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.**

- No

### Documentation and Metadata

**Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, codebook.tsv etc. where this information is recorded).**

The folders containing the data also have README.txt files that describe the data and the input files used to describe them.

**Will a metadata standard be used to make it easier to find and reuse the data?**
**If so, please specify which metadata standard will be used.**

**If not, please specify which metadata will be created to make the data easier to find and reuse.**

- No

Much, if not all, required meta data is already captured in the output and well-documented on the documentation pages of the open-source codes used.

### Data Storage & Back-up during the Research Project

**Where will the data be stored?**

- Personal network drive (I-drive)
- Large Volume Storage

**How will the data be backed up?**

- Personal back-ups I make (specify below)
- Other (specify below)

The exceptionally valuable data will always backed-up (such as restart files and code configuration files).

**Is there currently sufficient storage & backup capacity during the project?**

**If no or insufficient storage or backup capacities are available, explain how this will be taken care of.**

- Yes

**How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?**

Assess to the data is closely monitored by the involved parties.

**What are the expected costs for data storage and backup during the research project? How will these costs be covered?**

Overall, no significant costs are expected. The current benchfee should be sufficient to cover it.

### Data Preservation after the end of the Research Project

**Which data will be retained for 10 years (or longer, in agreement with other retention policies that are applicable) after the end of the project?**

**In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).**

- All data will be preserved for 10 years according to KU Leuven RDM policy

**Where will these data be archived (stored and curated for the long-term)?**

- KU Leuven RDR
- Other (specify below)

A combination of RDR and local disks will be used.

**What are the expected costs for data preservation during the expected retention period? How will these costs be covered?**

Overall, no significant costs are expected.

### Data Sharing and Reuse

**Will the data (or part of the data) be made available for reuse after/during the project?**
**Please explain per dataset or data type which data will be made available.**

- Yes, as restricted data (upon approval, or institutional access only)

**If access is restricted, please specify who will be able to access the data and under what conditions.**

Members of scientific collaborations (such as the Event Horizon Telescope Collaboration), scientists interested in reproducing part of a published study, or a collaborator that aims to continue the project.

**Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?**

**Please explain per dataset or data type where appropriate.**

- No

**Where will the data be made available?**

**If already known, please provide a repository per dataset or data type.**

- KU Leuven RDR (Research Data Repository)
- Other (specify below)

And some local storage devices.

**When will the data be made available?**

- Upon publication of research results

**Which data usage licenses are you going to provide?**

**If none, please explain why.**

- CC-BY 4.0 (data)

**Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.**

- Yes, a PID will be added upon deposit in a data repository

**What are the expected costs for data sharing? How will these costs be covered?**

Overall, no significant costs are expected, but if some costs do arise then we expect these to be covered by the benchfee.

**Responsibilities**

**Who will manage data documentation and metadata during the research project?**

The PDM holder Jesse Vos and the supervisor Fabio Bacchini.

**Who will manage data storage and backup during the research project?**

The PDM holder Jesse Vos and the supervisor Fabio Bacchini.

**Who will manage data preservation and sharing?**

The PDM holder Jesse Vos and the supervisor Fabio Bacchini.

**Who will update and implement this DMP?**

The PDM holder Jesse Vos and the supervisor Fabio Bacchini.