DMP

Project The induced dynamics from a nonequilibrium and active environment

Identifier *BOF research project* **C14/21/086**

Grant Title G098919N

Principal Investigator / Researcher Christian Maes

Description The project investigates the induced fluctuation dynamics on probes immersed in a nonequilibrium or active medium. The research consists of doing computations and proving mathematical claims

Institution KU Leuven

1. General Information

Name applicant

Christian MAES

BOF research project **C14/21/086**

The induced dynamics from a nonequilibrium and active environment

Affiliation

KU Leuven

2. Data description

Will you generate/collect new data and/or make use of existing data?

Describe the origin, type and format of the data (per dataset) and its (estimated)

volume, ideally per objective or WP of the project. You might consider using the

table in the guidance.

The research of this project is theoretical in nature and generates manuscripts for the

purpose of publication. Published papers will be included in the Lirias repository

managed by KU Leuven. They are also made available as preprints through an

internationally recognized Archive repository (ArXiv). This research uses software for

numerical simulations which runs and is maintained in the protected ICT environment

of our Institute for Theoretical Physics.

The software consists of scripts that are written using standard open-source libraries
(which are mentioned and documented in the comments section of the scripts)
The volume of these scripts is in the order of 100 Mbytes
These scripts produce output (simulations) in the form of .dat files and plots. The
volume of these files is in the order of 200 Gbytes for the entire project.
Hence the data consists of publications, code, .dat files and plots.

3. Legal & ethical issues

Will you use personal data? If so, shortly describe the kind of personal data you will use (add the reference to your file in your host institution's privacy register - not relevant yet)
No

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, add the reference to the formal approval by the relevant ethical review committee(s)
No

Does your work possibly result in research data with potential for tech transfer and valorisation? Will IP restrictions be claimed for the data you created? If so, for what data and which restrictions will be asserted?
No

Do existing 3rd party agreements restrict dissemination or exploitation of the data you (re)use? If so, to what data do they relate and what restrictions are in place?
No

4. Documentation & metadata

What documentation will be provided to enable reuse of the data collected/generated in this project?
Raw simulation data will be collected in a .dat file per simulation test in a separate folder, including a .txt file with a clear description of what the data represent and how they were generated. More precisely, for each input variable of our scripts, the txt file

specfies which input value was taken (eg dimension of a matrix to be diagonalized, parameters chosen, etc..)

Will a metadata standard be used? If so, describe in detail which standard will be used. If no, state in detail which metadata will be created to make the data easy/easier to find and reuse.

No

The only data involved are simulation data, outcomes of simple calculations (.dat files). As indicated above, there will be a clear txt file for each simulation, indicating precisely which calculation was performed. Moreover, the script, the .dat file and the

.txt file remain in the same folder, so the data can simply be recreated at any given time. Moreover, because of the increase in computation power, a future run of the same script, will generate much finer data in less time. 5. Data storage & back up during the project

Where will the data be stored?

All desktops have a shared storage (/home) on the fileserver of the Theoretical physics division.

How is back up of the data provided?

Researchers have access to a redundant storage system consisting of 12TB of disk space which they can use to store their data on. Data integrity is managed by our disk-to-disk storage solution which takes snapshots for backups every day (7 days) – every week (4 weeks) - every month (3 months) with an offsite backup every month.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available then explain how this will be taken care of.

Yes

yes, data server is monitored continuously. When the maximum capacity is approached (80%), the capacity will be increased. Currently, 60% of the capacity is in use.

What are the expected costs for data storage and back up during the project?

How will these costs be covered?

costs are minimal, since the data volume is modest. They are covered centrally by the theoretical physics division.

Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

All data is centralized on the main storage server, which is adequately secured. All data generated here is considered low-risk data.

6. Data preservation after the project

Which data will be retained for the expected 5 year period after the end of the project? In case only a selection of the data can/will be preserved, clearly state the reasons for this (legal or contractual restrictions, physical preservation issues, ...).

All data will be preserved for at least 5 years after the end of the project.

Where will the data be archived (= stored for the longer term)?

Data will be stored on the back-up server for up to 3 years. Afterwards the data will be moved to a cold storage server for an additional 3 years.

What are the expected costs for data preservation during the retention period of 5 years? How will the costs be covered?

Costs are minimal since the volume of data is modest. These costs are shouldered centrally by the Theoretical physics division.

7. Data sharing and reuse

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

No

Which data will be made available after the end of the project?

Scripts to generate data are custom-made.. They are available upon request. Of course, the publications are available to all.

Where/how will the data be made available for reuse?

Other (specify):

Scripts to generate data are custom-made. They are available upon request. Of course, the publications are available to all.

When will the data be made available?

Upon publication of the research results

Who will be able to access the data and under what conditions?
Scripts to generate data are custom-made. They are available upon request. Of course, the publications are available to all.
What are the expected costs for data sharing? How will the costs be covered?
Expected costs are minimal since the volume of data is modest. Costs are shouldered by the Theoretical institute division.

8. Responsibilities

Who will be responsible for data documentation & metadata?
researchers in the project
Who will be responsible for data storage & back up during the project?
Filip Sevenants, our IT coordinator
Who will be responsible for ensuring data preservation and reuse?
researchers in the project
Who bears the end responsibility for updating & implementing this DMP?
The PI