FWO DMP Template

Project supervisors (from application round 2018 onwards) and fellows (from application round 2020 onwards) will, upon being awarded their project or fellowship, be invited to develop their answers to the data management related questions into a DMP. The FWO expects a **completed DMP no later than 6 months after the official start date** of the project or fellowship. The DMP should not be submitted to FWO but to the research co-ordination office of the host institute; FWO may request the DMP in a random check.

At the end of the project, the **final version of the DMP** has to be added to the final report of the project; this should be submitted to FWO by the supervisor-spokesperson through FWO's e-portal. This DMP may of course have been updated since its first version. The DMP is an element in the final evaluation of the project by the relevant expert panel. Both the DMP submitted within the first 6 months after the start date and the final DMP may use this template.

1. General Information	
Name applicant	**Thomas Ceulemans**
FWO Project Number & Title	**FWO project number: 1166722N** **Probabilistically modelling the birth and death of stars: changing the game with fast and precise emulation-enabled radiative cooling**
Affiliation	x KU Leuven ☐ Universiteit Antwerpen ☐ Universiteit Gent ☐ Universiteit Hasselt ☐ Vrije Universiteit Brussel ☐ Other:
2. Data description	

Will you generate/collect new data and/or make use of existing data?	x Generate new data x Reuse existing data
Describe the origin, type and format of the data (per dataset) and its (estimated) volume *If you **reuse** existing data, specify the **source** of these data.* *Distinguish data **types** (the kind of content) from data **formats** (the technical format).*	**A new solver (self-written, c++ code, <1GB)** **Benchmarks of the new solver (generated, test results, <1GB)** **Machine learning dataset (generated, dataset, ~100GB)** **Machine learning model (trained on dataset, neural network, <1 GB)** **Stellar wind models (reuse of Institute of Astronomy models, numerical model, ? GB)**

3. Ethical and legal issues	
Will you use personal data? If so, shortly describe the kind of personal data you will use AND add the reference to your file in your host institution's privacy register. *In case your host institution does not (yet) have a privacy register, a reference is not yet required of course; please add the reference once the privacy register is in place in your host institution.*	☐ Yes x No If yes: - Privacy Registry Reference: - Short description of the kind of personal data that will be used:
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).	☐ Yes x No If yes: - Reference to ethical committee approval:

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?	☐ Yes x No If yes, please comment:
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?	☐ Yes x No If yes, please comment: 'If we would compare against source-available software, restrictions might exist.'

4. Documentation and metadata	
What documentation will be provided to enable understanding and reuse of the data collected/generated in this project?	**In each folder containing data, there will be a read-me file denoting which data is stored here, when it was generated (if applicable) and in which data format it is saved.**
Will a metadata standard be used? If so, describe in detail which standard will be used. If not, state in detail which metadata will be created to make the data easy/easier to find and reuse.	☐ Yes x No If yes, please specify:

5. Data storage & backup during the FWO project	
Where will the data be stored?	**The program developed during this will be stored on a public github repository. Data generated by this project will initially be stored on personal devices. These are backed up regularly by the Institute of Astronomy servers. At the end of the project, the data will be transferred to the server of the Institute of Astronomy, such that it remains available.**
How will the data be backed up?	The stored data is regularly backed up on the Institute of Astronomy servers, according to the KU Leuven security standards.

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.	x Yes ☐ No Yes, if more storage would be needed, it can be covered by the research group working budget.
What are the expected costs for data storage and backup during the project? How will these costs be covered? *Although FWO has no earmarked budget at its disposal to support correct research data management, FWO allows for part of* ***the allocated project budget*** *to be used to cover the cost incurred.*	**The costs are covered by the research group working budget.**
Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?	**The data are stored on Institute of Astronomy servers following KU Leuven security standards; all data is secured with access restrictions on file-system level.**

6. Data preservation after the end of the FWO project FWO expects that data generated during the project are retained for a period of minimally 5 years after the end of the project, in as far as legal and contractual agreements allow.	
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 used in this project will be retained for at least the expected 5 year period.**
Where will these data be archived (= stored for the long term)?	**The solver and benchmarks are stored in an open-source repository on github. The other data will be archived on the Institute of Astronomy servers.**

What are the expected costs for data preservation during these 5 years? How will the costs be covered? *Although FWO has no earmarked budget at its disposal to support correct research data management, FWO allows for part of* ***the allocated project budget*** *to be used to cover the cost incurred.*	**The solver and benchmarks are stored on Github for free. Journal publication are stored by third parties at no additional cost as well by KU Leuven facilities at no additional cost. Costs for back-up and storage on Institute of Astronomy servers is covered with the research group working budget.**

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)?	☐ Yes ☐ No If yes, please specify:**'If source-available software is used to compare against, permission will be needed from the authors.'**
Which data will be made available after the end of the project?	**The new solver and benchmarks will be made available on Github once an accompanying paper is published.**
Where/how will the data be made available for reuse?	x In an Open Access repository ☐ In a restricted access repository x Upon request by mail x Other (specify): The solver will be released on Github. Journal publications will be made available on the journal website, ArXiv (openaccess) and the KU Leuven tool Lirias.
When will the data be made available?	**The relevant data will be made available on publication of an accompanying paper.**
Who will be able to access the data and under what conditions?	**The source code, benchmarks and machine learning model will be freely available on github. Other data will be issued upon request to the insititute of Astronomy of the KU Leuven.**

What are the expected costs for data sharing? How will these costs be covered? *Although FWO has no earmarked budget at its disposal to support correct research data management, FWO allows for part of* ***the allocated project budget*** *to be used to cover the cost incurred.*	**N/A**

8. Responsibilities	
Who will be responsible for the data documentation & metadata?	**The project PI.**
Who will be responsible for data storage & back up during the project?	**The project PI, project coordinator and the Institute of Astronomy system management team.**
Who will be responsible for ensuring data preservation and sharing?	**The project PI, project coordinator and the Institute of Astronomy system management team.**
Who bears the end responsibility for updating & implementing this DMP? *Default response: The PI bears the overall responsibility for updating & implementing this DMP*	**The PI bears the overall responsibility for updating & implementing this DMP**