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	**Haowei Huang**
FWO Project Number & Title	**1242922N - "Z-scheme" Photoelectrochemical Cell Converting CO2 and Sunlight into Fuels**
Affiliation	☒ 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?	☒ Generate new data ☐ 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).*	***The primary data that will be generated consists of*** ***1) Analogue data:*** ***1.1) Samples (photocatalysts and photoelectrodes).*** ***1.2) Laboratory logbooks.*** ***1.3) Researchers' notebooks.*** ***2) Digital data (total estimated volume of tens to hundreds of GB/year):*** ***2.1) Experimental data (as directly measured): ASCII data files containing numerical data (measurement output) and text metadata (describing experimental/instrumental parameters). Different formats (.txt, .dat and .cvs), depending on instrument used for the measurements.*** ***2.2) Processed and analyzed experimental data: text documents, spreadsheets and graphical representation of data, used for (or resulting from) data analysis.*** ***The kind of data that is generated is similar the for all work packages of the project.***

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
	☒ 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 ☒ 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 ☒ 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 ☒ No If yes, please comment:

4. Documentation and metadata

What documentation will be provided to enable understanding and reuse of the data collected/generated in this project?	*During each experiment, a detailed logbook will be used. These logbooks will contain the date, a brief description of the performed experiment, the parameters used for each measurement, as well as the names of all the saved files.* *In addition, data will be stored in a folder per experimental setup, the type of investigated system and the corresponding date. In this way, by tracking the corresponding logbook notes, each file can be easily found on the local computers controlling the setup and on the server of the laboratory.* *The analysis files will contain notes describing the analysis procedure and mention which original data files are included. A readme file describing the goal of the experiment and the analysis procedure will be stored in the folder where the data 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 ☒ No If yes, please specify:

5. Data storage & backup during the FWO project

Where will the data be stored?	*Physical samples will be stored for at least one year in the lab, rooms 00.170, Chem&Tech building, Celestijnenlaan 200F. After that period, the samples are expected aged and it is unlikely that reproducible data can be recorded on them. However, for each sample details will be reported and stored about the different fabrication steps, timing, and characterization. This should allow reproducible fabrication of the samples.* *All physical logbooks will be stored in a cabinet next to the experiment setups.* *The electronic data, including the raw data and analysis files, as well as reports, will be saved on the VSM server.*
How will the data be backed up?	
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 ☐ No If no, please specify:
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.*	***Costs are expected to be small (few hundred euro max) and will be covered by other running projects in the group***
Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?	***The data generated during the project will be systematically transferred to the VSM, with restricted access. Only the promotor and involved researchers have access to the shared folders where the data, analysis files and reports will be stored.***

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 the generated data will be stored at the VSM server for at least 5 years after the project ends.*
Where will these data be archived (= stored for the long term)?	*All data will be stored on the VSM server*
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.*	*Costs are expected to be small (few hundred euro max) and will be covered by other running projects in the group*

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:
Which data will be made available after the end of the project?	**All data can be made available on an open repository, for example if requested by the editor or publisher of a scientific journal or via restricted access upon request of an individual (e.g. a researcher who intends to reproduce an experiment).**

Where/how will the data be made available for reuse?	☒ In an Open Access repository ☐ In a restricted access repository ☐ Upon request by mail ☐ Other (specify):
When will the data be made available?	*After the research results have been published and after agreement of the promotors.*
Who will be able to access the data and under what conditions?	*Upon request and after agreement of the promotors, access to the data can be granted to individuals/parties*
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.*	*Since the volume of most files is not too large, freeware can be used to transfer and share the files.*

8. Responsibilities	
Who will be responsible for the data documentation & metadata?	*The promotors of the project*
Who will be responsible for data storage & back up during the project?	*The promotors of the project, together with the IT responsible of the research group, who is responsible for the implementation of the storage and regular back up on the VSM server.*
Who will be responsible for ensuring data preservation and sharing?	*The promotors of the project*
Who bears the end responsibility for updating & implementing this DMP? *Default response: The PI bears the overall responsibility for updating & implementing this DMP*	*The promotors of the project*