

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	Devika Rajagopal
FWO Project Number & Title	1S44622N Novel large-area two-terminal solution-processed perovskite/silicon tandem modules by shingling: detailed analysis of material interactions and loss factors
Affiliation	<input checked="" type="checkbox"/> KU Leuven <input type="checkbox"/> Universiteit Antwerpen <input type="checkbox"/> Universiteit Gent <input type="checkbox"/> Universiteit Hasselt <input type="checkbox"/> Vrije Universiteit Brussel <input type="checkbox"/> Other:
2. Data description	
Will you generate/collect new data and/or make use of existing data?	<input checked="" type="checkbox"/> Generate new data <input checked="" type="checkbox"/> Reuse existing data

<p>Describe the origin, type and format of the data (per dataset) and its (estimated) volume</p> <p><i>If you reuse existing data, specify the source of these data.</i></p> <p><i>Distinguish data types (the kind of content) from data formats (the technical format).</i></p>	<ol style="list-style-type: none"> (1) Published papers for literature study Origin: Scientific journals, conference proceedings Format: Pdf, powerpoints (2) Cell measurements Origin: From cell measurements through experiments Format: Usually stored as .txt files and graphs plotted using origin (3) Other characterization data (SEM, AFM, XRD, Raman spectroscopy, etc...) Origin: From experiments (4) Simulation data Origin: From simulations in matlab or other softwares <p>Most of the data in this PhD will be new data generated by experiments. It is possible to use some already existing data (such as cell results, SEM images, etc... from previous students' work) for comparison purposes.</p>
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3. Ethical and legal issues

<p>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.</p> <p><i>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.</i></p>	<p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p>If yes:</p> <ul style="list-style-type: none"> - Privacy Registry Reference: - Short description of the kind of personal data that will be used:
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<p>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).</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: - Reference to ethical committee approval:</p>
<p>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?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, please comment: It is possible that the results in this project have the potential for tech transfer and valorisation. The results which involve experiments which uses 3rd party materials/setups whose IP cannot be disclosed without their consent. Most of the data will be owned by imec along with the host institute, as imec owns majority of the equipment and materials used in this project. Designs/processes created during this project may have IP restrictions placed, whose results can only be published after IP arrangements are done</p>
<p>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?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, please comment: Some experiments use IP by external companies. To publish the results of such experiments, prior consent from their end is required. The extent of the data published will be determined after consultation with the external company.</p>

4. Documentation and metadata

<p>What documentation will be provided to enable understanding and reuse of the data collected/generated in this project?</p>	<p>The FWO plan included one publication per work package. Hence, the experiments and resulting data generated will be published. Yearly reports will be prepared. Detailed interpretation of data (and the experimental plans and setups) will be made as presentations (or reports) on a bi-weekly basis which will be updated as the experiments proceed.</p>
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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.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>Since this is a highly experimental project, an official metadata standard cannot be used. Currently, all the experiments are documented in excel with detailed experimental setup data and results. These are stored in the imec database. Plans and discussions are also stored in one note which are backed up in the imec database, which will be translated into the excel plan tracker as the experiments proceed. For better understanding of the raw data which is stored in folders, a 'readme' .txt file is prepared for every folder, which explains what each kind of data is and its origin.</p> <p>If yes, please specify:</p>
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5. Data storage & backup during the FWO project

Where will the data be stored?	The data will be stored in sharepoint/onedrive environment created by imec.
How will the data be backed up?	The data in sharepoint/onedrive is automatically backed up into the cloud.
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.	<input checked="" type="checkbox"/> Yes <p>Sufficient TB of data storage capacity is provided by imec in its sharepoint/onedrive platforms. An issue of storage capacity is not likely to happen during the duration of this PhD</p> <input type="checkbox"/> No <p>If no, please specify:</p>
<p>What are the expected costs for data storage and backup during the project? How will these costs be covered?</p> <p><i>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.</i></p>	As the data storage is provided by imec to its employees/students for free, the cost is not known. The use of allocated project budget for purchasing data storage and backup will not happen during duration of this PhD.

Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?	All the data stored in sharepoint/onedrive environments are labelled with a 'confidential' marker. Furthermore, specific permission by the folder owner needs to be acquired to access the data. Additionally, when one shares the data, he/she can choose if the data is shared as 'readonly' or will be with editing permission. Since these platforms are provided by imec, a high security is expected.
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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 data generated during this thesis will be stored for the expected 5 year period after the end of the thesis. Most important data will be the ones used for publications. The rest of the data (including experimental plans and setups) will also be stored for future projects and further research.
Where will these data be archived (= stored for the long term)?	The data will be retained on the same environment as mentioned above. Additionally access will be shared with the promotor (Jef Poortmans), daily supervisor (Hariharsudan Sivaramakrishnan) and team leader (Loic Tous).
What are the expected costs for data preservation during these 5 years? How will the costs be covered? <i>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.</i>	No costs are expected since the data will continue to be stored in the same environment

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 3 rd party, legal restrictions)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, please specify: Some experiments are conducted with the materials provided by third parties. Since these are intellectual properties of the companies, it is required to ask permission regarding the extent of data which can be shared.
Which data will be made available after the end of the project?	Data which are not a result of experiments involving third party collaborations are to be shared with the consensus of the promoter/supervisor.
Where/how will the data be made available for reuse?	<input type="checkbox"/> In an Open Access repository <input type="checkbox"/> In a restricted access repository <input checked="" type="checkbox"/> Upon request by mail <input type="checkbox"/> Other (specify):
When will the data be made available?	After the results are published. If internal teams/projects require this data before the publication of results for their own research, data can be shared on a mutual agreement, given that it will be properly cited.
Who will be able to access the data and under what conditions?	The promoter, supervisor and team lead will have free access to the data.
What are the expected costs for data sharing? How will these costs be covered? <i>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.</i>	There are not foreseen expenses for data sharing. Again, this will depend on who requires the data and for what purpose. If the data needs to be used by future students/researchers within the group, no costs are involved. However, if the data is required in an industrial concept, costs may be involved which can be determined by the supervisor.

8. Responsibilities

Who will be responsible for the data documentation & metadata?	Throughout the duration of the PhD, I will be responsible for the documentation and metadata
Who will be responsible for data storage & backup during the project?	Throughout the duration of the PhD, I will be responsible for the data storage and backup

Who will be responsible for ensuring data preservation and sharing?	Throughout the duration of the PhD, I will be responsible for ensuring data preservation and sharing. Sharing will be done in consultation with the supervisor
Who bears the end responsibility for updating & implementing this DMP? <i>Default response: The PI bears the overall responsibility for updating & implementing this DMP</i>	The PI bears the overall responsibility for updating & implementing this DMP