DELIVERABLE REPORT D3.4

DELIVERABLE

SUBMISSION DATE	NAME OF THE DELIVERABLE	WORK PACKAGE
23.6.2018	Data Management Plan	WP3
NATURE	AUTHOR(S)	LEAD BENEFICIARY
Public	Božena Čechalová, Vlastimil Křápek (BUT)	BUT

PROJECT DETAILS

PROJECT ACRONYM	PETER	GRANT AGREEMENT	767227
CALL IDENTIFIER	H2020-FETOPEN-1-2016-2017	PROJECT DURATION	1.1.2018 – 31.12.2020
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	Universität Stuttgart		Germany
	CIC nanoGUNE		Spain
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QUALITY CONTROL ASSESSMENT SHEET

VERSION	DATE	DESCRIPTION	NAME
v0.1	14. 5. 2018	First draft	Božena Čechalová, Vlastimil Křápek (BUT)
v0.2	24. 5. 2018	Review first draft	Filip Ligmajer (BUT)
v0.3	13. 6. 2018	Consortium approval	Consortium meeting in Billingshurst, UK
v1.0	23. 6. 2018	Quality check and submission to the EC	Božena Čechalová (BUT)

DISCLAIMER

ACKNOWLEDGEMENT

This document is a deliverable of the PETER project, which has received funding from the European Union's Horizon 2020 Programme under Grant Agreement (GA) #767227.

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LIST OF ABBREVIATIONS

CEITEC	Central European Institute of Technology
DMP	Data Management Plan
DOI	Digital Object Identificator
EC	European Commission
FAIR	Findable, Accessible, Interoperable, Reusable

SUMMARY

This report presents the initial Data Management Plan (DMP) for PETER project. It addresses the data collected and produced as part of the execution, dissemination and management of a disruptive research that will be commercially exploited in the following years.

This document will be revised according to the needs potentially arising during the three-year implementation of the project, and will be complemented by the Open Research Data Pilot deliverable (D3.10) due in month 36 (at the end of the project).

1. INTRODUCTION

1.1 H2020 REQUIREMENTS

The European Commission (EC) is running a flexible pilot under Horizon 2020 called the Open Research Data Pilot (ORDP). This pilot is part of the Open Access to Scientific Publications and Research Data Program in H20201. The ORDP aims to improve and maximise access to and re-use of research data generated by Horizon 2020 projects and takes into account the need to balance openness and protection of scientific information, commercialisation and Intellectual Property Rights (IPR), privacy concerns, security as well as data management and preservation questions.

Projects participating in the ORDP are required to develop a Data Management Plan (DMP). The DMP describes the types of data that will be generated or gathered during the project, the standards that will be used, the ways how the data will be exploited and shared for verification or reuse, and how the data will be preserved. In addition, beneficiaries must ensure their research data are findable, accessible, interoperable and reusable (FAIR).

PETER DMP (D3.4) will be set according to the article 29.3 of the Grant Agreement "Open Access to Research Data". Project participants must deposit their data in a research data repository and take measures to make the data available to third parties, as well as provide information, via the repository, about tools and instruments needed for the validation of project outcomes. The third parties should be able to access, reproduce, disseminate and exploit the data in order, among others, to validate the results presented in scientific publications.

However, the obligation of participants to protect results, security obligations, obligations to protect personal data and confidentiality obligations prior to any dissemination still apply. As an exception, the beneficiaries do not have to ensure open access to specific parts of their research data if the achievement of the action's main objective, as described in Annex I, would be jeopardised by making those specific parts of the research data openly accessible.

Therefore, the hereby presented DMP contains the reasons for not giving access to specific data based on the exception provision above. The PETER consortium has decided what information would be made public according to aspects such as potential conflicts against commercialization, IPR protection of the knowledge generated (by patents or other forms of protection), and/or a risk for obtaining the project objectives.

1.2 PETER PROJECT OBJECTIVES

The overall objective of the project is to provide Proof-of-Principle of implementation of plasmonic principles into EPR and thus to initiate a fundamentally new technology direction as Plasmon-enhanced THz EPR enabling spectroscopy and microscopic imaging under the diffraction limit close or at the THz range. To fulfil this general objective, the particular objectives must be met as follows:

- Design and fabrication of plasmonic structures (PS) suitable for EPR experiments, with magnetic plasmon resonances in the THz, providing magnetic field enhancement by 2 orders of magnitude, and so the EPR signal enhancement by 4 orders of magnitude localized in a sub-micrometer area.
- Application of PS in THz EPR experiments, evaluation and optimization of their performance with respect to their successful utilization in PE THz EPR spectroscopy and scanning microscopy. Proof-of-Principle applications of PE THz EPR spectroscopy. Increase of spin sensitivity by plasmonic effects with respect to THz EPR without antennas: ≥ 104 times.
- Design, assembly and testing of a platform for PE THz EPR scanning microscopy based on the modified THz EPR spectrometer and a Scanning Probe Microscopy (SPM) unit (scanning stage and head carrying a cantilever tip with a PS at its apex) to be developed.
- Proof-of-Principle application of a platform for PE THz EPR scanning microscopy. Sensitivity: 103 spins for 1 h, spatial resolution: ≤ 1 μm.

2. DATA SUMMARY

In the PETER project, the data defined as follows will be made accessible within the ORDP:

Type of the Data	The underlying data needed to validate the results in scientific publications. Other data to be developed by the project: deliverable reports, meeting minutes, demonstrator videos, pictures from set-ups approved for dissemination by the consortium, technical manuals for future users, etc.
Format of the data	Electronic. The PETER consortium will assure that the format of the electronic data will be accessible according to the FAIR policy.
Size of the data	The size of the data is not expected to exceed the file size occurring in the course of the beneficiaries' research on a daily basis. The repository used sets a limit for a single datafile upload to 512 MB.
Origin of the data	Majority of the underlying data will be a direct output from simulation software and/or equipment used. Other types of data will be written or prepared by the PETER researchers and support staff working on the project.
Utility of the data	To other researchers, allowing them to validate and disseminate the PETER project results, as well as exploit them in order to start their own investigations.

3. FAIR DATA

For the underlying data, the PETER consortium will use ResearchGate repository for ORDP purposes since this repository facilitates linking publications and underlying data through persistent identifiers (DOIs) and data citations, as well as data archiving and linking datasets to Projects to increase their visibility. Moreover, most of the researchers involved in the PETER project already have a profile on ResearchGate. Therefore, the FAIR data policy the PETER project is following is that established by this repository.

For the other data, the consortium will provide access using the project website (www.peter-instruments.eu).

3.1 MAKING DATA FINDABLE, INCLUDING PROVISIONS FOR METADATA

3.1.1. Discoverability: Metadata Provision

Metadata are created to describe the data and aid discovery. Beneficiaries will complete all mandatory metadata required by the repository and metadata recommended by the repository - Type of Data, DOI, Publication Date, Title, Authors, Description, Terms for Access Rights, and a link to a ResearchGate Project (https://www.researchgate.net/project/Plasmon-Enhanced-Terahertz-Electron-Paramagnetic-Resonance) as outlined in the repository instructions https://explore.researchgate.net/display/support/Data.

3. 1.2. Identifiability of data

Beneficiaries will maintain the Digital Object Identifier (DOI) when the publication/data has already been identified by a third party with this number. Otherwise ResearchGate will provide each dataset with a DOI.

3.1.3. Naming convention

A naming convention for uploading data to the repository is not mandatory, since the ResearchGate repository includes a description of the dataset ensuring easy findability. However, for internal project purposes, the following guidelines are recommended:

Filename length: max. 40 characters

Characters: alphanumerical; including dot (.), underscore (_), and hyphen (-).

Filename structure: clear and descriptive. Optionally, initials of the responsible person or a time note can be included.

Examples:

Diabolo_simulations_MH.txt

Diabolo_for_midinfra_2018_01.txt

2.1.4. Approach towards search keywords

ResearchGate doesn't provide keywords for each dataset. Each author will make sure to include relevant keywords in the datafile description. All dataset generated by the project consortium will be also identified with the keyword PETER.

3.2 MAKING DATA OPENLY ACCESSIBLE

The underlying data related to scientific publications, the public deliverables and other datafiles included in Section 2 of this DMP will be made openly accessible via ResearchGate and the project website.

The work-in-progress specifications of the PETER instrumentation, the datasheets and internal evaluations of the PE EPR THz scanning microscopy platform performance, laboratory records, working schemes and other data as agreed upon between the project consortium members are excluded from the ORDP and will not be made public in order to not jeopardise potential commercialisation and IPR protection of knowledge generated.

The dissemination rules of all project results follow the provisions set in the PETER Consortium Agreement, Article 8.4.

3.3 MAKING DATA INTEROPERABLE

Interoperability means allowing data exchange and re-use between researchers, institutions, organisations, countries, etc. (i.e. adhering to standards for formats, as much as possible compliant with available (open) software applications, and in particular facilitating re-combinations with different datasets from different origins. PETER project ensures the interoperability of the data by using data in standard electronic formats, and using ResearchGate repository with a standardised scheme for metadata.

3.4 INCREASE DATA RE-USE

Underlying ata (with accompanying metadata) will be shared on ResearchGate no later than publication of the related paper. The maximum time allowed to share underlying data is the maximum embargo period established by the EC, six months.

Data will be accessible for re-use using the Creative Commons licenses provided by the ResearchGate, without limitation during and after the end of the implementation period of PETER project. After the end of the project, data will remain in the repository, and any additional data related with the project but generated after its end will be also uploaded to the repository at the responsibility of the authors.

4. ALLOCATION OF RESOURCES

PETER project will use ResearchGate to make data openly available so there will be no infrastructure costs for the storage of the data. The personnel costs incurred in connection with the management of the data will be eligible as a part of the allocated resources within the grant.

5. DATA SECURITY

ResearchGate stores the content across various secure services and also makes copies onto separate back up servers to assure continuity and preservation in the event of service disruption.

6. ETHICAL ASPECTS

No ethical issues apply to any data generated and processed by the PETER project.

7. CONCLUSIONS

This DMP is intended to be used by PETER project partners as a reference for data management (providing metadata, storing and archiving) within the project, on all occasions the data are produced. The project partners have contributed to and reviewed the DMP and are familiar with its use as part of WP3 activities. The Leader of the Work Package 3 will also provide support to the project partners on using ResearchGate and the project website as the data storage and management tool. The coordinating institution will ensure the Research Open Data policy by verifying periodically the information uploaded to the repositories.