Plan Overview

A Data Management Plan created using DMPonline

Title: Messengers to hidden sectors

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Template: Horizon 2020 DMP Customised By: University of Manchester

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Project abstract:

The Standard-Model (SM) of particle physics is a quantum-field-theoretical model able to explain with few free parameters almost all observations of High-Energy-Physics (HEP). Its predictions have been confirmed by current and past experiments such as the LHC. The most recent success is the discovery of the Higgs particle. However, the SM is lacking the ingredients necessary to explain key observations such as seemingly accidental internal symmetries or the observation of Dark Matter on cosmological scales. The field of beyond the SM research augments the SM with extensions able to explain these deficits and makes predictions of how such extensions would be observable at current and future experiments. While many such predictions are for heavier particles calling for even larger HEP experiments, some of these extensions predict comparably light new particles with a fairly weak interaction to the SM. Such extensions call for a different kind of HEP experiments dubbed ‘intensity frontier’ experiments. Such experiments search for rare processes induced by these particles or for signatures originating in the longevity of some of such particles. Often these particles are only the least secluded of a whole new sector of hidden new particles. In this project I will use the well established technique of effective field theories describing the SM at different energy scales in order to systematically describe the interactions of the SM to generic hidden sectors via generic messenger particles. The results of this project will allow me to describe such new interactions at various experiments covering the ‘intensity frontier’.

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Messengers to hidden sectors

Manchester Data Management Outline

1. Is this project already funded?

- No

2. If you will be applying for funding from multiple sources who else will you be applying to?

- Not applicable

3. Is The University of Manchester the lead institution for this project?

- Yes – only institution involved

4. What data will you use in this project (please select all that apply)?

- Not acquire or re-use data (please provide details)

5. Where will the data be stored and backed-up during the project lifetime?

- University of Manchester Research Data Storage Service (Isilon)
- Other storage system (please list below)

6. If you will be using Research Data Storage, how much storage will you require?

- < 1 TB

7. If you have a contractual agreement with a 3rd party data provider will any of the data associated with this project be sourced from, processed or stored outside of the

institutions and groups stated on your agreement?

- Not applicable

8. How long do you intend to keep your data for after the end of your project (in years)?

- < 5 years

Questions about personal information

Personal information or personal data, the two terms are often used interchangeably, relates to identifiable living individuals. Special category personal data is more sensitive information such as medical records, ethnic background, religious beliefs, political opinions, sexual orientation and criminal convictions or offences information. If you are not using personal data then you can skip the rest of this section.

Please note that in line with data protection law (the General Data Protection Regulation and Data Protection Act 2018), personal information should only be stored in an identifiable form for as long as is necessary for the project; it should be pseudonymised (partially de-identified) and/or anonymised (completely de—identified) as soon as practically possible. You must obtain the appropriate ethical approval in order to use identifiable personal data.

- No sensitive or personal data

10. Please provide details of how you plan to store, protect and ensure confidentiality of the participants' information as stated in the question above.

N/A

11. If you are storing personal information will you need to keep it beyond the end of the project?

- Not applicable

12. Sharing person identifiable information can present risks to participants' privacy, researchers and the institution. Will the participants' information (personal and/or sensitive) be shared with or accessed by anyone outside of the University of Manchester? This includes using 3rd party service providers such as cloud storage providers or survey platforms.

- No

13. If you will be sharing personal information outside of the University of Manchester, will the individual or organisation you are sharing with be outside the EEA?

- Not applicable

14. Are you planning to use the personal information for future purposes such as research?

- No

15. Who will act as the data custodian or information asset owner for this study?

Fedor Bezrukov

16. Please provide the date on which this plan was last reviewed (dd/mm/yyyy).

08/09/2018

1. Data summary

Provide a summary of the data addressing the following issues:

- **State the purpose of the data collection/generation**
- **Explain the relation to the objectives of the project**
- **Specify the types and formats of data generated/collected**
- **Specify if existing data is being re-used (if any)**
- **Specify the origin of the data**
- **State the expected size of the data (if known)**
- **Outline the data utility: to whom will it be useful**

No data is collected. Research result are published papers.

2. FAIR data

2.1 Making data findable, including provisions for metadata:

- **Outline the discoverability of data (metadata provision)**
- **Outline the identifiability of data and refer to standard identification mechanism. Do you make use of persistent and unique identifiers such as Digital Object Identifiers?**
- **Outline naming conventions used**
- **Outline the approach towards search keyword**
- **Outline the approach for clear versioning**
- **Specify standards for metadata creation (if any). If there are no standards in your discipline describe what metadata will be created and how**

All papers are submitted to arXiv and publicly searchable

2.2 Making data openly accessible:

- **Specify which data will be made openly available? If some data is kept closed provide rationale for doing so**
- **Specify how the data will be made available**
- **Specify what methods or software tools are needed to access the data? Is documentation about the software needed to access the data included? Is it possible to include the relevant software (e.g. in open source code)?**
- **Specify where the data and associated metadata, documentation and code are deposited**
- **Specify how access will be provided in case there are any restrictions**

All papaers are submitted to arXiv and published in open access journals.

2.3 Making data interoperable:

- **Assess the interoperability of your data. Specify what data and metadata vocabularies, standards or methodologies you will follow to facilitate interoperability.**
- **Specify whether you will be using standard vocabulary for all data types present in your data set, to allow inter-disciplinary interoperability? If not, will you provide mapping to more commonly used ontologies?**

N/A

2.4 Increase data re-use (through clarifying licenses):

- **Specify how the data will be licenced to permit the widest reuse possible**
- **Specify when the data will be made available for re-use. If applicable, specify why and for what period a data embargo is needed**
- **Specify whether the data produced and/or used in the project is useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why**
- **Describe data quality assurance processes**
- **Specify the length of time for which the data will remain re-usable**

N/A

3. Allocation of resources

Explain the allocation of resources, addressing the following issues:

- **Estimate the costs for making your data FAIR. Describe how you intend to cover these costs**
- **Clearly identify responsibilities for data management in your project**
- **Describe costs and potential value of long term preservation**

N/A

4. Data security

Address data recovery as well as secure storage and transfer of sensitive data

N/A

5. Ethical aspects

To be covered in the context of the ethics review, ethics section of DoA and ethics deliverables. Include references and related technical aspects if not covered by the former

N/A

6. Other

Refer to other national/funder/sectorial/departmental procedures for data management that you are using (if any)

N/A