
Messengers to hidden sectors

A Data Management Plan created using DMPonline

Creators: Fedor Bezrukov, Jan Hajer

Affiliation: University of Manchester

Funder: Newton International Fellowship

Template: Horizon 2020 DMP Customised By: University of Manchester

ORCID iD: 0000-0001-8083-9102

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’.

Last modified: 07-04-2020

Copyright information:

The above plan creator(s) have agreed that others may use as much of the text of this plan as they would like in their own plans, and customise it as necessary. You do not need to credit the creator(s) as the source of the language used, but using any of the plan's text does not imply that the creator(s) endorse, or have any relationship to, your project or proposal

Messengers to hidden sectors - Initial DMP

Manchester Data Management Outline

- No
- Not applicable
- Yes – only institution involved
- Not acquire or re-use data (please provide details)
- Other storage system (please list below)
- University of Manchester Research Data Storage Service (Isilon)
- < 1 TB
- Not applicable
- < 5 years
- No sensitive or personal data

N/A

- Not applicable
- No
- Not applicable
- No

Fedor Bezrukov

08/09/2018

1. Data summary

No data is collected. Research result are published papers.

2. FAIR data

All papers are submitted to arXiv and publicly searchable

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

N/A

N/A

3. Allocation of resources

N/A

4. Data security

N/A

5. Ethical aspects

N/A

6. Other

N/A