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MSCA Postdoctoral Fellowships 2022

TOPIC ID: HORIZON-MSCA-2022-PF-01-01

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-msca-2022-pf-01-01>

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PARTS OF PROPOSAL REGARDING OPEN SCIENCE BELOW

PART B-1 AVAILABLE AS A SEPARATE DOCUMENT

**SEE TABLE FAR BELOW FOR SUGGESTED ADDITIONS AND CHANGES**

1.2 Soundness of the proposed methodology

Open science practices and FAIR principles

The nature of our research allows us to keep it fully open at every step. In fact, it is part of our research methodology that the users actively get involved in the process. Therefore, our research shall be able to fulfil most open science practice. We shall keep preliminary versions of our research manuscripts on ArXiv and submit the final versions to high quality open access journals. We shall use open-source software and keep the development of our own packages and datasets in a public git repository. Final version of our datasets will be publicly available on a website and in a FAIR-repository (such as Zenodo, MathDataHub).

As explained in Section 1.1, data management is still a young discipline in mathematics. Data production and storage has not been a key part of the traditional development of theoretical mathematics. Moreover, although most theoretical mathematicians embrace the notion of *open science*, the awareness of the FAIR principles for managing mathematical data is at a considerably lower level. A part of the problem might lie in the fact that specific nature of mathematics requires specific adaptations of the FAIR principles. This problem has been addressed in a recent work of by Bercic et al.59, where the notion of Deep FAIR. We shall follow their guidelines and at the same time use PolyData to promote the Deep FAIR principles.

We shall make our datasets findable by publishing datasets into an open FAIR-repository (Zenodo, MathDadaHub). We shall write appropriate metadata and documentation so that our datasets are not only accessible from the corresponding research papers (as it is usually the standard on mathematics) but from both a web-based interfaced and a downloadable source. This shall include corresponding software packages to manipulate and experiment with the datasets. Our data and metadata will be presented in web-based format as well as in platform independent formats (PDF, CVS). Full interoperability of software and mathematical objects is almost impossible but we shall at least make our datasets compatible with most popular computer algebra systems such as GAP, SageMath and magma. We shall follow community standards in order to create datasets and software packages as reusable as possible.

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**OPEN SCIENCE IN HORIZON EUROPE**

MSCA Postdoctoral Fellowships are funded with Horizon Europe, so provisions regarding open science in Horizon Europe apply. They are mandatory and recommended.

**Mandatory open science practices:**

* Open access to all publications from the project;
* Data Management Plan (DMP);
* FAIR research data and „as open as possible, as closed as necessary“.

**Recommended open science practices:**

* FAIR and open access to other research results (software, models, algorithms, processes, protocols ...);
* Use FAIR research data and services from EOSC;
* Preregistration;
* Registered reports;
* Sharing preprints;
* Open peer review;
* Citizen science.



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**REVIEW OF THE MSCA PF PROPOSAL IN QUESTION**

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| --- | --- | --- |
| **Horizon Europe MSCA PF open science provisions** | **MSCA PF proposal in question** | **Suggested additions and changes** |
| **Mandatory open science practices:**  **Open access to all publications from the project** | 1.2 submit the final versions to high quality open access journals | Peer-reviewed articles from the project (i.e., Versions of Record or Author Accepted Manuscripts) will be licensed with CC BY 4.0 licence and deposited into the Repository of the University of Ljubljana (which is a trusted repository) and made immediately available via this repository without embargo. APC vouchers will be used from the Slovenian transformative agreements with publishers to publish open access articles in subscription/hybrid journals without cost. We will explore DOAJ for relevant open access journals (APCS are eligible costs in Horizon Europe) as well as consider Open Research Europe platform (no cost for Horizon Europe beneficiaries) as open access publishing outlets. |
| **Mandatory open science practices:**  **Data Management Plan (DMP)** |  | A Data Management Plan (DMP) will be initiated at the start of the project and regularly updated with changes regarding research questions and results. Argos or DMPonline tools will be used to establish a DMP. |
| **Mandatory open science practices:**  **FAIR research data and „as open as possible, as closed as necessary“** | 2.3 Our data will be published as an open FAIR-repository with the appropriate documentation and software packages so that the users can easily include it on their own workflow. … In particular, our project, as a whole, shall be a test case of the Deep FAIR principles.  1.2 This problem has been addressed in a recent work of by Bercic et al.59, where the notion of Deep FAIR. We shall follow their guidelines and at the same time use PolyData to promote the Deep FAIR principles.  1.2 Final version of our datasets will be publicly available on a website and in a FAIR-repository (such as Zenodo, MathDataHub). | Data will be prepared and a repository chosen to ensure FAIR (Findable, Accessible, Interoperable, Reusable). We will check re3data.org and FAIRsharing.org for a suitable domain data repository, or, if such a repository does not exist, deposit research data into the Repository of the University of Ljubljana, which is preserved at the Slovenian Vega HPC and at ARNES servers (Academic and Research Network of Slovenia). All this applies to raw data and processed data as well as research data underlying peer-reviewed articles. |
| **Recommended open science practices:**  FAIR and open access to other research results (software, models, algorithms, processes, protocols ...) | 1.2 We shall use open-source software and keep the development of our own packages and datasets in a public git repository. |  |
| **Recommended open science practices:**  Use FAIR research data and services from EOSC |  | Would it be possible to get research data from data archives or research infrastructures that are part of the European Open Science Cloud (EOSC)? |
| **Recommended open science practices:**  Preregistration |  | Please check if it makes sense to preregister your research and shortly describe here. <https://www.cos.io/initiatives/prereg> |
| **Recommended open science practices:**  Registered reports |  | Please check if it makes sense to publish a registered report and shorty describe here.  <https://www.cos.io/initiatives/registered-reports> |
| **Recommended open science practices:**  Sharing preprints | 1.2 We shall keep preliminary versions of our research manuscripts on ArXiv |  |
| **Recommended open science practices:**  Open peer review |  | This applies to journals that you will chose to publish your results, e.g., Open Research Europe platform uses open peer review. |
| **Recommended open science practices:**  Citizen science |  | Probably not applicable to include citizens in your research. Mention this so the reviewer will see that you are aware of all recommended open science practices in Horizon Europe. |