Plan upravljanja istraživačkim podacima projekta - SHIILAOM

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Data management plan / Plan upravljanja istraživačkim podacima

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Research data management plan (RDMP)

	Administrative information	
	Principal investigator	Marko Karlušić
	Affiliation	Ruđer Bošković Institute
	Project proposal title	Swift heavy ion irradiation of layered amorphous oxide materials
	RDMP contact person	Marko Karlušić
1.	Data collection and documentation	
	What data will you collect, analyse, generate or reuse? (Please state the type, format and volume of data you will collect, not only final data set that will be the result research)	From experiments, we will collect and analyse data in the form of spectra (FTIR, Raman), 2D maps (GISAXS, ERDA, AFM) or images (TEM, SEM). From simulations, we will collect and analyse data generated by codes Geant4 and LAMMPS. Both input and output data will be collected. Formats that will be used will be compatible with free software that can be used for analyses (Gwyddion or WSXM for AFM, GISAXSstudio for GISAXS, Ovito for LAMMPS etc.) Volume of the data depends on the technique to be used, i.e. spectra in general doesn't require much space (kB), while images could require much more (MB). Results of the simulations will be probably the most demanding for the storage, as output data could reach GB in size. It is expected that experiments and simulations would yield tens or hundreds of spectra, maps or images.
	How will the data be collected, processed, or generated? (Briefly describe methodologies and quality assurance processes you will use, organization of your project files and data, tools and instruments which will be used for collecting and processing the data)	Data will be collected during experiments via data acquisition (DAQ) software, depending on the instrument used. Later analysis will be done offline, using the open source codes. Theoretical investigations will be done using Geant4 and LAMMPS codes. The data that will be generated will be stored for later (offline) analysis. We plan to acquire/generate sufficient amount of the data to enable statistically relevant analyses. For example, typically 10 MD simulations will be done with (almost) the same initial parameters, to quantify effects of statistical fluctuations.
	What data documentation and metadata you will develop and provide that are accompanying the data? (In documentation provide all information needed for users to be able to read and interpret the data in the future e. g. code books, ReadMe files, etc.)	The experimental data we will collect will be accompanied by laboratory journals (logbooks). These will be scanned after each experiment and added to the acquired data. Similar practice will be implemented for theoretical simulations. Therefore, all relevant data needed for successful repetition of experiment or simulation will be provided.
2.	Ethics, legal and security issues	

		Are you restricted by a confidentiality agreement? Do you have the necessary permission to obtain process, preserve and share the data? Have the people whose data is being preserved been informed or did they give their consent? What methods will you use to ensure the protection of sensitive data (GDPR special category personal data, specify methods of data anonymization)?	I am not restricted by confidentiality agreement. Yes, I have all necessary permissions to obtain, preserve and share the data.
		How will you regulate access to the data and their security? What potential risks do you have to take in consideration? How will you ensure safe sensitive data storage?	All project team members will have access to the working data via platform set-up on the project website. We do not expect potential security issues to be a risk to the project. Standard backup procedures (i.e. regular backup practice) should ensure data safety. After the project results are published, relevant data will be made accessible via supplemental materials accompanying the paper (if needed). Otherwise, the data and accompanying metadata will be compressed, and unencrypted file will be deposited on the Fulir, open access platform hosted by RBI.
		How will you manage copyright and Intellectual Property Rights issues? Who will be the owner of the data? Which licenses will be applied to the data? What restrictions apply to the reuse of third-party data?	Results of our work will be published as scientific articles. Most likely, we will not need to protect our data with respect to IPR. However, if the research will yield results that need to be protected, actions to do so will be done according to the RBI rules, and related data will not be made accessible until this is resolved. All other data we will handle under open access rules.
3.	Data storage and preservation		
		How will you store different versions of data during the project? How will your data be backed-up during the project? What amount of data are you expecting to be collected and stored during the project (specify in MB/GB/TB)	Both experimental and simulation data will be collected and grouped together with the metadata. Different versions of the data, if any, will be indicated by the date and metadata will be described in the logbooks. Acquired data will be stored on at least three different places (i.e. backup will be done at regular intervals). During the project, the data will be stored locally and shared among the group members via platform at project website. During the project, we expect to collect and store (locally) data in excess of 1 GB.
		How will your dataset be curated and preserved during the project and after the project? What file formats will be used for data storage? What amount of data are you expecting to be collected and stored after the project (specify in MB/GB/TB)	Curation of the data will be done as ongoing work during the analysis of the data. After the publication of results in scientific paper, relevant data (format depends on the technique that has been used) will be stored at public repository Fulir (https://fulir.irb.hr) in unencrypted compressed file, that will be available to everyone. Most important data might be also published as supplementary material. After the project, we expect to store (in public repository) data in excess of 100 MB.

4.	Data sharing and reuse	
	How and where will the data be shared? On which repository do you plan to share your data? How will potential users find out about your data?	Data will be shared via public repository Fulir (https://fulir.irb.hr). As the preprint of the paper will also be stored there, it will easy to find the data. Also, we plan to have a description on the project website that will enable easy location of the data.
	If there is any data which cannot be shared (due to legal, ethical, copyright, confidentiality reasons) explain the reasons of restrictions	There are no restrictions for sharing the data that we are aware of.
	Confirm that the digital repository you choose is in line with the FAIR principles	Fulir repository is in line with FAIR principles.
	Please confirm that you will use a digital repository maintained by a non-profit organisation (if not please explain why)	Fulir repository is maintained by RBI which is a non-profit organisation.