**Research data management plan (RDMP)**

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| Administrative information |
|  | Principal investigator  | Dijana Žilić |
|  | Affiliation | Ruđer Bošković Institute |
|  |  Project proposal title | Molecular magnetism in advanced solid and soft materials |
|  | RDMP contact person | Jurica Jurec, jjurec@irb.hr |
| 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)  | Three basic types of raw spectroscopic data will be collected during the project:1. spectra obtained by using continuous wave ESR (CW ESR) spectroscopy,2. data from the time decay of electron spin coherence in pulsed ESR measurements,3. 2-D time resolved data in pules ESR measurements.Data in all the categories will be documented in a specific digital format emerging directly from the ESR spectrometer (DSC, DTA) and converted to ASC format for further evaluation. We can estimate that for all the data 10 GB would be sufficient for the archives. |
|  | 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)  | All the experimental data will be automatically deposited in institutional repository of the measuring device along with all the details related to specific measurements available in the data file. Institutional laboratory notebook will serve for the archiving of sample description as well as measurement details which will be digitised by scanning. Original programme of the instrument (program Xepr, data file format DSC and DTA) serves for the acquiring data and initial analytical evaluation. The quality of detected data will be assured by calibration of measurement conditions using calibration standard. All the measurements will be repeated and intercomparing performed in order to check for the consistency of results. In the further analysis of experimental data various programme packages like Origin, Mathematica, and Matlab with EasySpin will be used. |
|  | 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.) | Metadata as the data from the project publications will be taken into consideration. They will be available in README,txt data file along with the information about the origin, description, access and usage rules as well as time of creation and the authorship. |
| 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)? | The project does not have confidentiality agreement and there is no need to obtain the permission to collect, process, preserve and share the data. In addition, while performing the activities of the project there will be no violation of the ethical norms and there are no delicate data which should be specially protected. |
|  | 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 the data will be preserved in the protected environment not connected with the internet in order to eliminate the potential risks and to assure security of storage of data collected in extremely expensive measurements. However, all the data related to the published project contributions will be available in the system for data storage in Ruđer Bošković Institute under the supervision of Division for informatics which assures the archive security. |
|  | 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? | No patents are expected in the framework of the project activities. All the other issues regarding intellectual properties will be resolved in accordance with Ruđer Bošković Institute legal acts. Due to the fact that the acquired data are not confined by any contract, they will be published as open access data under the licence of Creative Commons CC0. The owner of the project data/results is Ruđer Bošković Institute and they will be made public after publishing project contributions. |
| 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)  | The data acquired during the investigation will be copied from the ESR spectrometer computer into the national system for storage and sharing of data Puh (<https://www.srce.unizg.hr/puh>) which allows the access to the actual version of data to the project team members. The security copy of all the data is automatically generated on daily basis on the platform Puh. This security copy will be also deposited on an independent electronic medium and Jurica Jurec will be responsible for its security and storage on weekly basis. Laboratory diary are kept in the laboratory of principal investigator. It is expected that 10 GB will be enough for data storage. |
|  | 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) | For the long-term data storage (longer than 3 years after the project period finished) and final publications/doctoral theses there will be laboratory archive possibilities in usage (terabyte disks, USB sticks etc.), classified according to the work packages, as well as archive platform of Srce. Data will be available in 3 formats: ASC, PDF and DOCX. It is to be expected that 30 GB should be enough for data storage. |
| 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? | The principal investigator will share the data via Ruđer Bošković Institute repository established in the national system Dabar in which publications and all the other project documentation will be deposited. Data will be published under the licence CC0. We have chosen the Institutional repository in the system of Dabar since it supports FAIR principles: meetings are tagged with permanent identifier URN:NBN, visibility of data is assured via OpenAIRE portal and Google Scholar as well as search engine dabar.srce.hr. These aspects contribute towards the visibility and transparency of Ruđer Bošković Institute activities. In every publicly reported publication there will the information how to reach the source data. |
|  | If there is any data which cannot be shared (due to legal, ethical, copyright, confidentiality reasons) explain the reasons of restrictions | Original data linked to the authorship of publishing will be shared in public at the moment of publishing. All the unpublished data will be deposited in repository and shared in public 12 months after the project has finished. |
|  | Confirm that the digital repository you choose is in line with the FAIR principles | We confirm that the digital repository we have chosen 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) | We confirm that we will use a digital repository maintained by a non-profit organisation. |