

DATA MANAGEMENT PLAN (DMP)

IRA Project MAB/02/2016 of the Foundation for Polish Science

“International Centre for Interfacing Magnetism and Superconductivity with Topological Matter – MagTop”

Accepted by MagTop’s ISC on Nov. 21st, 2019

Introduction: According to Horizon2020 rules, MagTop is committed to:

- (i) The **green open-access principle** – all MagTop’s publications (including supplementary information attached to manuscripts) are posted in the open-access preprint repository arXiv (<https://arxiv.org/>) under the Creative Commons Attribution license (CC BY 4.0), paying attention to posting also the version as close as possible (in accord to particular journal copy rights requirements) to the final published version. No MagTop manuscripts should be submitted to journals do not permitting posting of manuscripts in time of submission. Posting at arXiv is mandatory at time of submission even if the journal is open-access (independently of whether the publication charge is imposed – gold open-access journal or not – green open-access journal).
- (ii) Storing and sharing of the research data follows the **FAIR principle**: findable, accessible, interoperable, and reproducible

Data Officer	Dr. Przemysław Iwanowski <iwanowskip@MagTop.ifpan.edu.pl>
Legal and Ethical Aspects – for all types of MagTop’s research data	
Legal aspects	Character of the MagTop Project indicates that there are no legal barriers other than Intellectual Property Rights and Copy Rights, precluding making the research data accessible. No licencing for reuse of the research data are foreseen now but this question is systematically re-examined during the project lifetime.
Ethical aspects/ data quality and accessibility control	The project topic indicates that there are no specific ethical issues associated with research data collected during MagTop Project execution except for the general question of research reliability and integrity, as described in <i>“Ethics for researchers” published by the European Commission or “The European Code of Conduct for Research Integrity”</i> . The issue of research reliability and integrity, i.e., a high standard of research data quality (benchmarking, calibration, reproducibility, checking known limits/samples, ...) is systematically monitored by MagTop’s Management Board (Project Directors and Team Leaders), particularly during group meetings and internal seminars. Keeping lab book (action and data documentation on daily basis) is mandatory.
Data Storage and Sharing – for all types of MagTop’s research data	
Data storage strategy and its implementation	The strategy aims and measures implemented: (i) Minimizing consequences of possible computers’ (and other storage means) failures or losses by systematic backups of research data and other research and administrative documents (no unauthorized access). Backing up once per day the data part of the computer disc to a portable memory kept separately (e.g. at home) is recommended. Network file server in the internal IFPAN network, supervised by Data Officer, serves also for this purpose; disk space 2x4 TB in raid 1 configuration (mirroring; no data loss in case of one disk failure). Available space for archiving - 4 TB. Automatic data replication using snapshots once a day. The last three versions of copies are kept. Data access is

	<p>password protected. On request, data can be shared on an encrypted network share (cloud solution based on ownCloud application) using Server-side encryption. Data access is password protected. The printed version of documentation is kept in MagTop's strongbox.</p> <p>(ii) Keeping for at least 10 years key data that have been obtained at MagTop and are not available in publications/patent descriptions but are essential to check the reliability of claims in MagTop's papers (including information posted in supplementary files), patents, and other research outputs (e.g., movies). These data (experimental results, calibrations, details of sample characteristics, Mathematica scripts, codes ...) should be made accessible in a readable form and with appropriate documentation on justified demands of community members or in-powered authorities; the corresponding author(s) of the paper/patent is obliged to store both data and the documentation describing their format and content, and to insure, in collaboration with MagTop's Data Officer, the storing continuity even after leaving MagTop.</p> <p>Costs of data storage are covered from MagTop's common budget.</p>
Data sharing strategy	<p>Sharing of research data with person(s)/organization(s) outside MagTop prior to publication or patenting require permission of MagTop's Directors. Data can be made accessible for collaborators outside MagTop to the extent justified by the agreed collaboration range. The corresponding author of published paper/patent is responsible for sharing research data associate with the paper/patent. The Project Management Board will act proactively to identify research data and research tools (e.g., codes) that have not been published but could be a subject of Intellectual Property Rights or Copy Rights, or could be reused by others without licensing but only by a proper acknowledgment of the source (in accord to best practices); such data, with appropriate documentation (metadata), should be posted in open-access online repository Zenodo (https://zenodo.org) (or similar) with a unique identification number.</p>

Recommended repositories for sharing specific research data

Results of <i>ab initio</i> band structure computations	<ol style="list-style-type: none"> 1. The Materials Project provides open web-based access to computed information on known and predicted materials as well as powerful analysis tools to inspire and design novel materials https://materialsproject.org/ 2. Automated Interactive Infrastructure and Database for Computational Science http://www.aiida.net 3. Database for topological materials https://topologicalquantumchemistry.org
Crystallographic data	<ol style="list-style-type: none"> 1. Database for the archiving and distribution of crystallographic information, CIF is in regular use for reporting crystal structure determinations to Acta Crystallographica and other journals. http://www.dcc.ac.uk/resources/metadata-standards/cif-crystallographic-information-framework 2. The Inorganic Crystal Structure Database (ICSD) https://www.psds.ac.uk/icsd