THE UK HIGH-FIELD SOLID-STATE NMR NATIONAL RESEARCH FACILITY (NRF)

DATA COLLECTION
<u>What data will you collect or create?</u>

NMR experimental data sets and associated files linked to the NMR experiments, e.g., pulse programs and phase lists for shaped pulses (all in Bruker TOPSPIN file format).

<u>How will the data be collected or created?</u>

Data is generated by users or the Facility Management Team operating the NMR spectrometers of the UK High-Field Solid-State NMR Facility.

DOCUMENTATION AND METADATA
<u>What documentation and metadata will accompany the data?</u>

Users are encouraged by the Facility Management Team to add details of the sample and experimental conditions not recorded in the Bruker data set in, for example, the name of the folder or the Title panel for each data set.

ETHICS AND LEGAL COMPLIANCE
<u>How will you manage any ethical issues?</u>

No expected ethical issues.

<u>How will you manage copyright and Intellectual Property Rights (IPR) issues?</u>

Commercially sensitive data, e.g., as generated during confidential paid-for industrial project research, is stored separately from data accessible to users, or deleted if requested by the company once the datasets have been transferred to the company. Data that is subject to a confidentiality agreement with a third party is excluded from requests for data sharing.

STORAGE AND BACKUP
<u>How will the data be stored and backed up during the research?</u>

Every 24hrs, data is copied to a University of Warwick Information and Digital Group (IDG) managed file server. A recovery point of the server is taken at 12:00 and 20:30 each day by the IDG managed backup service. These recovery points are retained as follows:
- Twice daily recovery points are retained for fourteen days.
- Friday evening recovery point is retained for four weeks.
- Last end of month recovery point is retained for twelve months.
- Last end of year recovery point is retained for two years.

Recovery data is encrypted on the file server with AES256 and replicated to three locations across campus.

<u>How will you manage access and security?</u>

Access to the University of Warwick IDG managed file server is restricted by membership of a security user group, managed by the NRF local management team. Via the local management team, a user applies for a password-protected and time-restricted (12 months, can be renewed)

guest account to access the data as backed up by the University of Warwick IT Services. Specifically, a NRF user is provided with a University of Warwick ID number which is granted access to only specific folders that hold their data. Data is accessed via the Myfiles service which offers data collection via HTTPS or the WebDAV protocol.

SELECTION AND PRESERVATION
Which data are of long-term value and should be retained, shared, and/or preserved?

The policy of the NRF is to save all data recorded on the NRF spectrometers (except for data that a third party requests is deleted, e.g., for a company's confidential research).

What is the long-term preservation plan for the dataset?

The NRF's policy is to make reasonable efforts to retain in a secure manner all Data for a period of ten years from the expiry of the privileged access period or from the date of any publication arising from the Data, whichever is later, provided that any publication occurs no later than ten years after the expiry of the privileged access period.

DATA SHARING
How will you share the data?

See "How will you manage access and security?" section of Storage and Backup section above for how users access their data recorded at the NRF.

A third party can request access to data recorded at the NRF by contacting the Facility Management Team, who will provide the data provided that the request complies with the NRF's data management policy, as published on the NRF website https://warwick.ac.uk/fac/sci/physics/research/condensedmatt/nmr/850/research_data_management_policy/

Are any restrictions on data sharing required?

Privileged access to research data is granted to the User for a period of 18 months after the date of acquisition.

On expiry of the privileged access period Data may be requested by a third party, except where data is subject to a confidentiality agreement between the University of Warwick and a third party.

During the privileged access period the Facility Management Team may make parameter sets and pulse programs generated by Users available to the Facility user community in order to expedite the operation of the Facility. A user may request an embargo on a pulse program for a novel experiment which is the subject of a forthcoming publication.

RESPONSIBILITIES AND RESOURCES
Who will be responsible for data management?

The Technical Director of the NRF (assisted by the Local Management Team), supported by IT Services of the University of Warwick, with funding for this requested in NRF grant applications.

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