PLAN ZARZĄDZANIA DANYMI [w języku angielskim]

1. Opis danych oraz pozyskiwanie lub ponowne wykorzystanie dostępnych danych

Sposób pozyskiwania i opracowywania nowych danych i/lub ponownego wykorzystania dostępnych danych

Potential representative electrochemical processes selected from the literature will be presented as a list. Simulations of Dynamic Electrochemical Impedance Spectroscopy spectrograms will be carried out on the basis of equations describing impedance using the Python programming language as the main tool, and the data will be saved in text files. Experimental measurements will be carried out according to the methodology described in the literature and will be recorded using dedicated software developed by the staff of the Department of Corrosion and Electrochemistry, Gdansk University of Technology, created in the LabView environment. Measurement files will be saved as TXT text files.
Simulation and experimental data files will be sorted according to the tests performed. Each file will be labelled with the date the simulation or measurement was performed. And each electrochemical process considered will be catalogued in a separate folder.

Pozyskiwane lub opracowywane dane (np. rodzaj, format, ilość)

Measurement data will include numerical simulations, measurement files, reports and graphs. Data will be stored in formats such as:
- raw data files in TXT, CSV, XLSX,
- image files in PNG, JPG,
- reports in DOCX, PDF.
The estimated volume of data will be approximately 2 GB (depending on the number of processes tested and simulated - one experimental measurement: approximately 6 MB, one simulation: approximately 4 MB). For easy sharing and reusability, the measurements will be accompanied by files in TXT and PDF formats.

2. Dokumentacja i jakość danych

Metadane i dokumenty (np. metodologia lub pozyskiwanie danych oraz sposób porządkowania danych) towarzyszące danym

For simulation analyses and data processing, a computer with high computing power is needed and equipped with MS software and/or Adobe Reader software. Knowledge of the interpretation of impedance and electrochemical data is required to interpret the data. The ability to use Python programming language tools is also required.
File names will be unified for easier handling (loading the data into analysis programs), although each data series will be catalogued in appropriate folders/subfolders describing the measurement/simulation in question.
Metadata relating to the simulations/experimental measurements performed will be stored in README files linked to the original data. The REDME files will contain information about the file names in the folder to clarify naming conventions and practices, the dates of the measurements/simulations, the type and description of the process simulated/measured, the electrodes used and the experimental measurement environments.

Stosowane środki kontroli jakości danych

Data quality will be ensured by performing repeated experimental measurements and by applying validation techniques to simulation analyses and experimental measurements.
Standardisation of data collection, regular data review and comparison of results with literature reports will ensure data quality and consistency.

3. Przechowywanie i tworzenie kopii zapasowych podczas badań

Przechowywanie i tworzenie kopii zapasowych danych i metadanych podczas badań

The measurement data will be stored on external hard drives, while the most important analyses and their results will additionally be stored on the university's OneDrive cloud to provide remote access to the data. Analysis programme codes will be deposited in a GitHub repository. Only the logged-in user will have access to the data. The 3-2-1 rule will be applied:
- three backups will be created,
- in the cloud and on portable media - disk on PI computer, external disk,
- backups will be made on a monthly basis.
Project manager is responsible for creating backups.

Sposób zapewnienia bezpieczeństwa danych oraz ochrony danych wrażliwych podczas badań

The project does not envisage the acquisition of sensitive data. If such data is acquired, it will be encrypted and stored in secure locations. In accordance with Gdańsk Tech's data security policy. Personal and sensitive electronic data is stored on workplace computers in an encrypted format, protected by a password to access documents, anti-virus software and a password to access the computer. In the case of sensitive data, the computer will remain offline. Only authorised persons will be allowed to process personal data. A secure business email system will be used for correspondence.

4. Wymogi prawne, kodeks postępowania

Sposób zapewnienia zgodności z przepisami dotyczącymi danych osobowych i bezpieczeństwa danych w przypadku przetwarzania danych osobowych

The project does not envisage the acquisition of personal data.. If such data is acquired the following measures will be implemented to secure the data at Gdańsk Tech. Personal data will be anonymised or pseudonymised if necessary to comply with the Polish RODO. Consent will be obtained from participants and data will be stored in a manner that ensures confidentiality.

Sposób zarządzania innymi kwestiami prawnymi, np. prawami własności intelektualnej lub własnością. Obowiązujące przepisy

In accordance with the Regulations for the Management of Copyrights, Related Rights, Industrial Design Rights and Commercialisation Rules, the Gdansk University of Technology will retain ownership of the intellectual property rights (Resolution of the Senate of the Gdansk University of Technology No. 117/2021/XXV of 19 May 2021), with researchers contributing on the basis of collaboration agreements. We will use CC BY/CC BY-SA licences or according to the data sharing request, ensuring appropriate acknowledgement of authorship and attribution.

5. Udostępnianie i długotrwałe przechowywanie danych

Sposób i termin udostępnienia danych. Ewentualne ograniczenia w udostępnianiu danych lub przyczyny embarga

Measurement data (for example, in TXT format) will be made available in the MOST Knowledge Open Research Data Catalogue and made available to the public no later than after publication of the research article, with a maximum embargo period of 36 months, in accordance with publication requirements. The embargo will be lifted immediately upon publication of the article.
Unless otherwise indicated, research data will be made available in the MOST Knowledge Open Research Data Catalogue under the Creative Commons CC BY 4.0 licence. Data not included in this repository will be archived for a period of 10 years. In justified cases, access to data may be temporarily restricted, e.g. to protect intellectual property rights. Once these restrictions cease, the data will be made openly available to the public.

Sposób wyboru danych przeznaczonych do przechowania oraz miejsce długotrwałego przechowywania danych (np. repozytorium lub archiwum danych)

Data will be stored in the MOST Knowledge Open Research Data Catalogue - a repository of the Gdansk University of Technology - in accordance with FAIR principles to ensure long-term preservation and reusability. Both data made publicly available and raw and processed data that will not be published will be archived for at least 10 years. Storage of this data will be in a cloud-based OneDrive archive assigned to the user and integrated into the computer via a member of staff at the Gdansk Tech IT Centre. Both the release of data in the repository and the storage in the OneDrive cloud are free of charge.

Metody lub narzędzia programowe umożliwiające dostęp do danych i korzystanie z danych

Data will be stored in standard file formats such as CSV, TXT, XLSX, DOCX, PDF and no special software will be required to access the data. However, users interested in analysing the data may need knowledge of the research area to be able to interpret the data appropriately.
The collected data will be published in the Gdansk University of Technology's institutional repository, the MOST Knowledge Open Research Data Catalogue. They will be made available in formats supported by free and open source software. If some of the files will be in formats requiring specialised or commercial tools, information on how to open and process them will be detailed in the accompanying README file.

Sposób zapewniający stosowanie unikalnego i trwałego identyfikatora (np. cyfrowego identyfikatora obiektu (DOI)) dla każdego zestawu danych
Każdemu zbiorowi danych zostanie przypisany identyfikator DOI (Digital Object Identifier), aby zapewnić możliwość jego wiarygodnego cytowania i śledzenia w czasie.
6. Zadania związane z zarządzaniem danymi oraz zasoby
Osoba (np. funkcja, stanowisko i instytucja) odpowiedzialna za zarządzanie danymi (np. data steward)
The project manager will oversee the content quality, accuracy, and timely publication of data in the MOST Wiedzy Open Research Data Catalogue. Support for proper data storage, documentation, and sharing—as well as clarification of intellectual property rights and applicable publication licenses—will be provided by the staff of the Gdańsk Tech Library's Open Science Competence Center and the Gdańsk Navigation IT Services Center.
Środki (np. finansowe i czasowe) przeznaczone do zarządzania danymi i zapewnienia możliwości odnalezienia, dostępu, interoperacyjności i ponownego wykorzystania danych
Data storage in the MOST Wiedzy Open Research Data Catalogue and in the OneDrive cloud (up to 100GB) is provided at no cost. Necessary personnel time, software tools, and storage resources will be secured to fully comply with the FAIR data principles. Any potential additional expenses will be covered through the project's indirect costs.