

## PLAN ZARZĄDZANIA DANYMI

<b>1. Opis danych oraz pozyskiwanie lub ponowne wykorzystanie dostępnych danych</b>
Sposób pozyskiwania i opracowywania nowych danych i/lub ponownego wykorzystania dostępnych danych
The data will relate to instrumental analyzes, e.g. in Raman spectrometry a set of spectra and tabular data, photos, images from SEM - EDX, TEM analysis, pore sizes and the content of CNH elements in tabular form. All new data will be collected and developed by project members during project-related experiments. Data will be generated in digital form using software tools (e.g. Microsoft, Mass Lynx, Empower, Diva, CytExpert, Gentools, LightCycler 480, BaseSpace, MinKNOW and others) used to control scientific equipment.
Pozyskiwane lub opracowywane dane (np. rodzaj, format, ilość)
Obtained or processed data will be collected mainly, but not exclusively in form <ol style="list-style-type: none"> <li>1. raw spectra, a specific format for databases or specific to instrumental programs</li> <li>2. images specific to image files .tif, .jpeg, .bmp etc.</li> <li>3. manually entered numerical text records stored in the form of table databases in formats suitable for programs.</li> </ol> Data owners - team participating in the project. Only data from XPS will be obtained from owners from external Instrumental Analysis units. Raw data generated by a qualified operator will be processed by the data manager using the appropriate software tool, if possible expressed in figures using SI units: concentration, mass, volume, etc.; pore type, volume, size, etc.; relative number of graphene layers, functional groups in the graphene structure and their type etc. Data will be imported manually or automatically from digital or analog sources for reuse. Analog sources (paper documentation) converted to the .xlsx digital format. The file size is not known.
<b>2. Dokumentacja i jakość danych</b>
Metadane i dokumenty (np. metodologia lub pozyskiwanie danych oraz sposób porządkowania danych) towarzyszące danym
Raw instrumental data will be organized in a software-specific manner. Metadata such as e.g. code, date, experiment details, data etc. will be processed manually and re-entered as ordered tabular databases together with metadata (date, type, grant number) if possible. If the data are shared, a "readme" file will be made explaining the specifics of the data in such a way that they are readable and understandable. Descriptive technical metadata will be in accordance with the standards of the repository, e.g. the University Library, in which they will be stored.
Stosowane środki kontroli jakości danych
The data will be published if the project's goal is achieved and evaluated by recent experts in terms of research and data quality. If possible, manually entered manually will be checked by another person to avoid mistakes. The software tools included in the statistical software packages will be used to check data consistency and obtain relevant data.
<b>3. Przechowywanie i tworzenie kopii zapasowych podczas badań</b>
Przechowywanie i tworzenie kopii zapasowych danych i metadanych podczas badań
The received data will be collected / stored electronically on the mass storage devices of the equipment used to collect data (personal computer / workstation), which are located at the Faculty of Chemistry of the Nicolaus Copernicus University. Access to them is protected by well-known procedures and technologies. The data will be stored as recommended by NCN. Backups regularly exported (once a month) to high-capacity external disks or a cloud disk.

Sposób zapewnienia bezpieczeństwa danych oraz ochrony danych wrażliwych podczas badań
Access to all devices used to generate and collect data will be controlled at the user level using the MS Windows domain protocol application. The project is not subject to the creation of sensitive data, in the event of possible sensitive data will be password protected in addition to user-level access. Passwords will be distributed using other communication channels than those used to transfer data.
<b>4. Wymogi prawne, kodeks postępowania</b>
Sposób zapewnienia zgodności z przepisami dotyczącymi danych osobowych i bezpieczeństwa danych w przypadku przetwarzania danych osobowych
Nie dotyczy
Sposób zarządzania innymi kwestiami prawnymi, np. prawami własności intelektualnej lub własnością. Obowiązujące przepisy
All intellectual property or property rights will belong to the data production and processing team. An agreement will be signed with such people regarding the disposal and dissemination of them on the Internet under free Creative Commons licenses in accordance with the recommendations of NCN.
<b>5. Udostępnianie i długotrwałe przechowywanie danych</b>
Sposób i termin udostępnienia danych. Ewentualne ograniczenia w udostępnianiu danych lub przyczyny embarga
Processed will be made available on reasoned request in person directly from the data author or by the data manager. Raw data should be made available a maximum of six months after publication by publishing the publisher's main findings as an add-on if they are required
Sposób wyboru danych przeznaczonych do przechowania oraz miejsce długotrwałego przechowywania danych (np. repozytorium lub archiwum danych)
The processed data will be made available in the UMK repository created in the appropriate saving and storage format. The data will be made available in a timely manner, usually no later than by publication of the main findings. Data on demand will be available at least ten years after it has been made available. The data made available through the UMK repository will be available as long as the repository is used.
Metody lub narzędzia programowe umożliwiające dostęp do danych i korzystanie z danych
To access raw data-on-request specialized software may be Necessary. When possible data will be exported to open formats readable by open-source software. processed data will be accessible using standard office applications.
Sposób zapewniający stosowanie unikalnego i trwałego identyfikatora (np. cyfrowego identyfikatora obiektu (DOI)) dla każdego zestawu danych
Data will be deposited and shared only in repositories offering free unique Digital Object Identifier (DOI) or a specific identifier for the selected repository, e.g. URI.
<b>6. Zadania związane z zarządzaniem danymi oraz zasoby</b>
Osoba (np. funkcja, stanowisko i instytucja) odpowiedzialna za zarządzanie danymi (np. data steward)
The project does not provide for a person responsible for managing data and resources, therefore the project manager will perform this function.

Środki (np. finansowe i czasowe) przeznaczone do zarządzania danymi i zapewnienia możliwości odnalezienia, dostępu, interoperacyjności i ponownego wykorzystania danych

The costs of deposition of data in specialized repositories may be incurred for the costs of the project when necessary. Mass-storage devices dedicated to project-related data backup will be purchased when necessary.

WZÓR