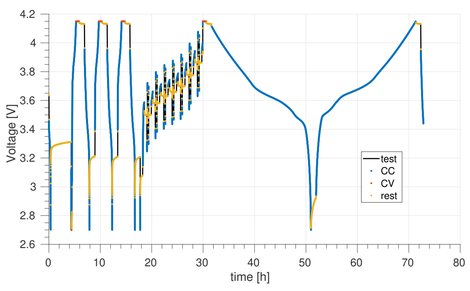
DATTES : An open and free software for batteries experimental data analysis

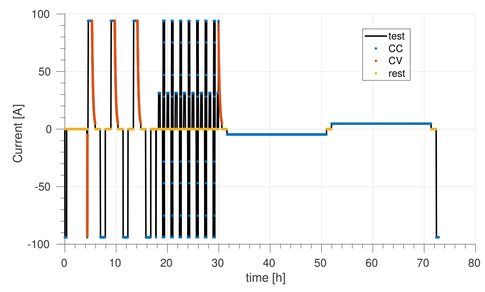
What is DATTES ?

An **open source** (GNU GPL v3) software written in **MATLAB** code and compatible with **GNU Octave** which aims to facilitate the **data analysis** process for **energy storage systems**.

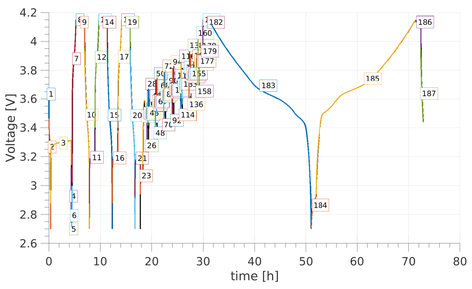
Structure and enrich your experimental data

- Identify the test modes (rest, CC, CV...)

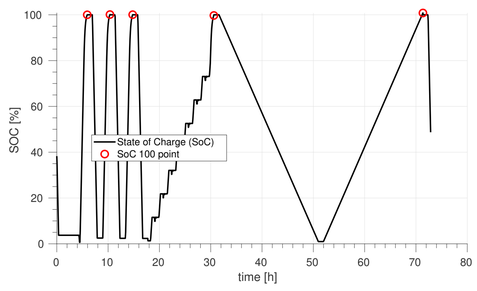




- Split in phases

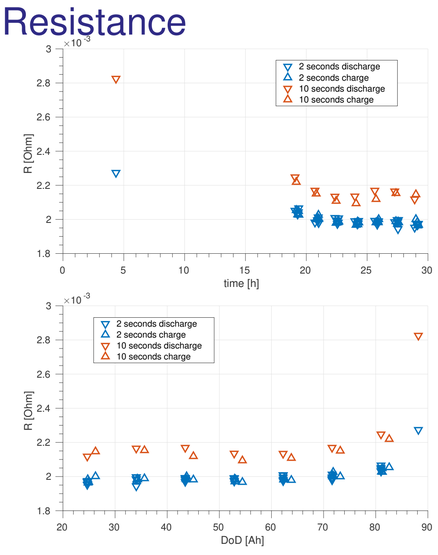


- Calculate state of charge

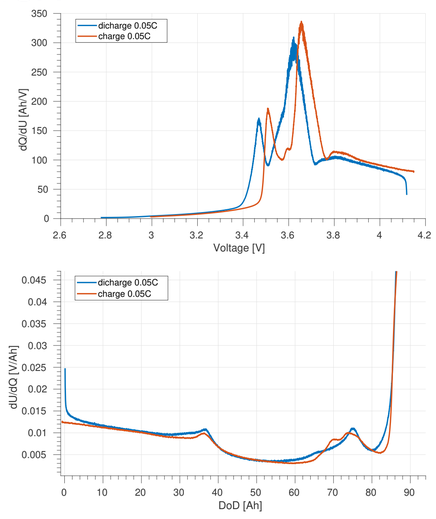


Analyse data

- Resistance



- ICA



Why would you need DATTES ?

- To enrich and standardise your experimental data
  - traceability et reproducbility of results
- Analysis methodology is configurable and adaptable
  - differents tests, differents équipments
  - stop reinventing the wheel for each new project
- Data visualisation and export tools (JSON, CSV, etc.)
  - interact with other software
- *Open Source* Software

If you | use / inspect / modify / share | the code = You contribute to the project !

Analysis process in DATTES

With DATTES, the data analysis is done in four steps :

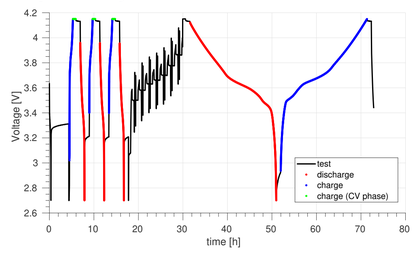
- **Read** and **standardise** experimental data : *dattes_import*
  - read the raw data from cyclers
  - convert data to a standard format
- **Enrich** and **structure** data : *dattes_structure*
  - detect usages phases of the battery
  - calculate state of charge
  - add metadata
- **Configure** analysis methods : *dattes_configure*
  - select specific phases for each analysis type
  - configure analysis methods
- **Analyse** data : *dattes_analyse*
  - capacity, resistance, impedance, OCV, ICA, etc.

Two additional tools for :

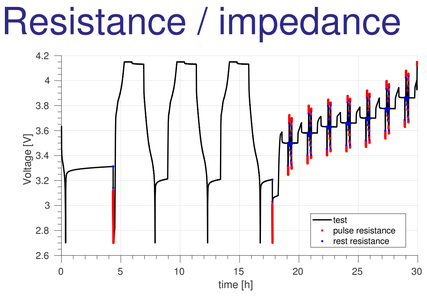
- **Visualising** each step of the analysis process : *dattes_plot*
- **Export** data (JSON, CSV, etc.) : *dattes_export*

Configure analysis method

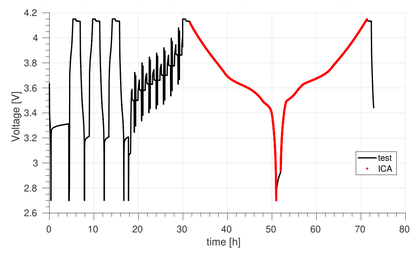
- Capacity



- Resistance / impedance



- Pseudo OCV / ICA / DVA



- Select phases
- Define the methodologie
- Structure *configuration* :
  (default values can be modified)
  - *configuration.soc*
    - *crate_cv_end* (C/20)

    ...
  - *configuration.resistance*
    - *delta_time* (2, 10 sec.)
    - *pulse_min_duration* (9 sec.)
    - *pulse_max_duration* (600 sec.)
    - *rest_min_duration* (9 sec.)
    - *filter_phase_nr*

    ...
  - *configuration.ica*
    - *max_crate* (C/5)
    - *filter_type* ('A')
    - *filter_order* (100)
    - *filter_cut* (1)

    ...

Conclusion

DATTES propose tools for :

- **standardising** experimental data and analysis results
- **structuring** information and **enrich** it with metadata
- **configure** data analysis methods
- **analyse** data
- **visualise** and **export** data

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Ampère

GEST GESTION DE L'ENERGIE ET STOCKAGE POUR LES TRANSPORTS ÉQUIPE DE RECHERCHE COMMUNE AMPÈRE/UGE