LOVE DATA WEEK

Nordic Edition

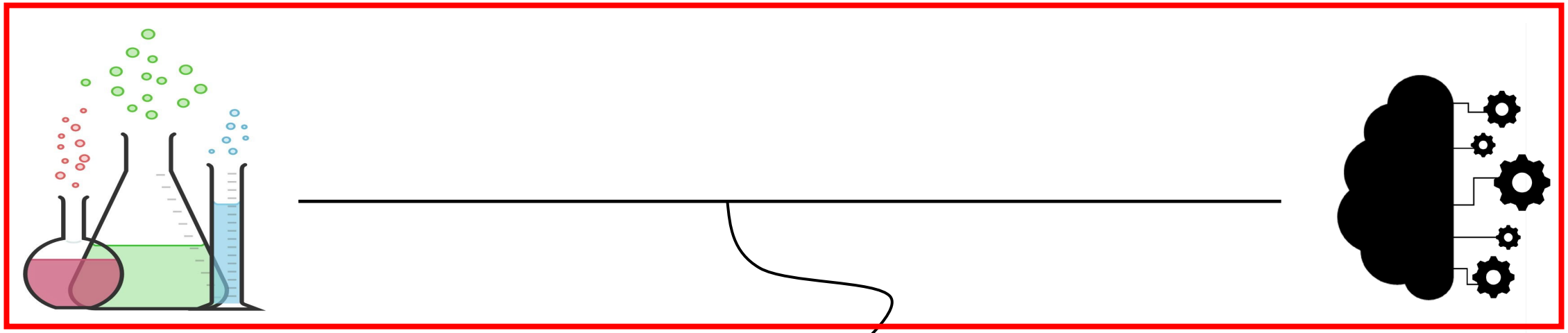
AMAD for Material Science

Matteo Iannacchero

Aalto University - 09.02.2026

Aalto University
School of Chemical
Engineering

AI-Guided Biohybrid Assembly Platform for E-Textiles

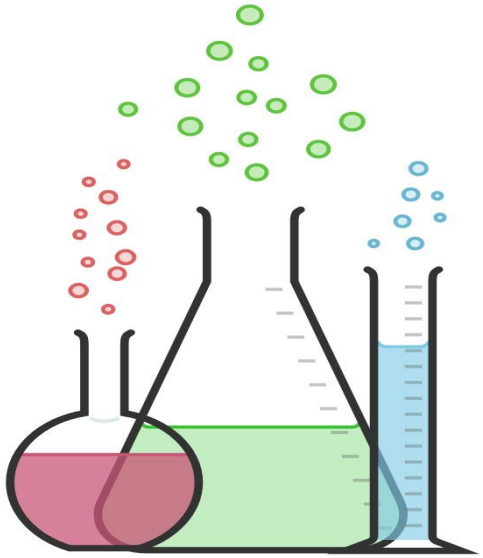


Lab work
(data acquisition)

AI-optimization of
final properties
(BOSS)

Optimized e-textiles

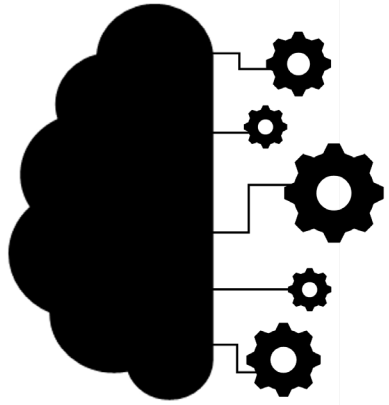
AI-Guided Biohybrid Assembly Platform for E-Textiles



AMAD

Aalto Materials Digitalization Platform

https://www.nanolayers.com/



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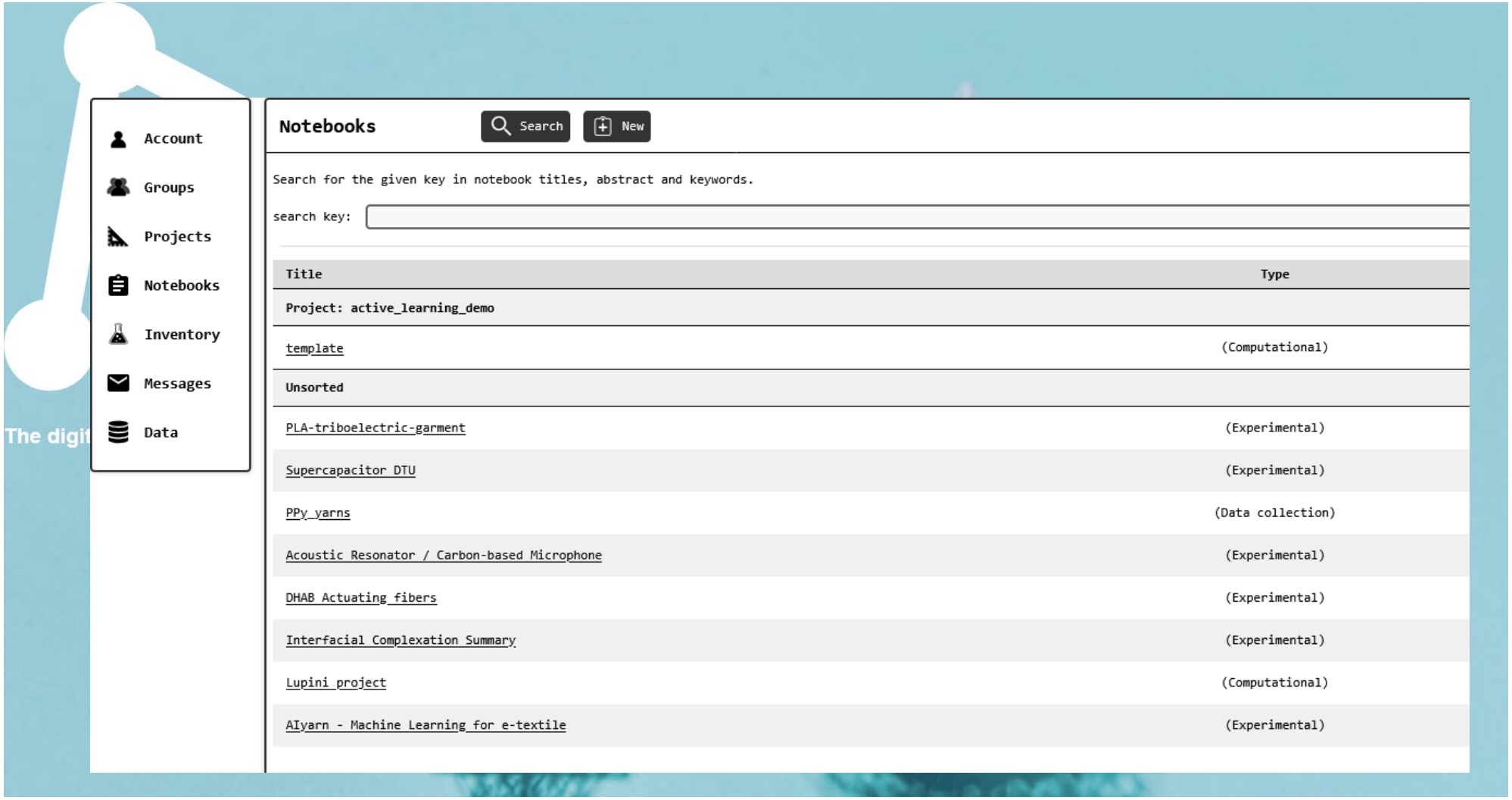
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Search for the given key in notebook titles, abstract and keywords.
search key:
Title
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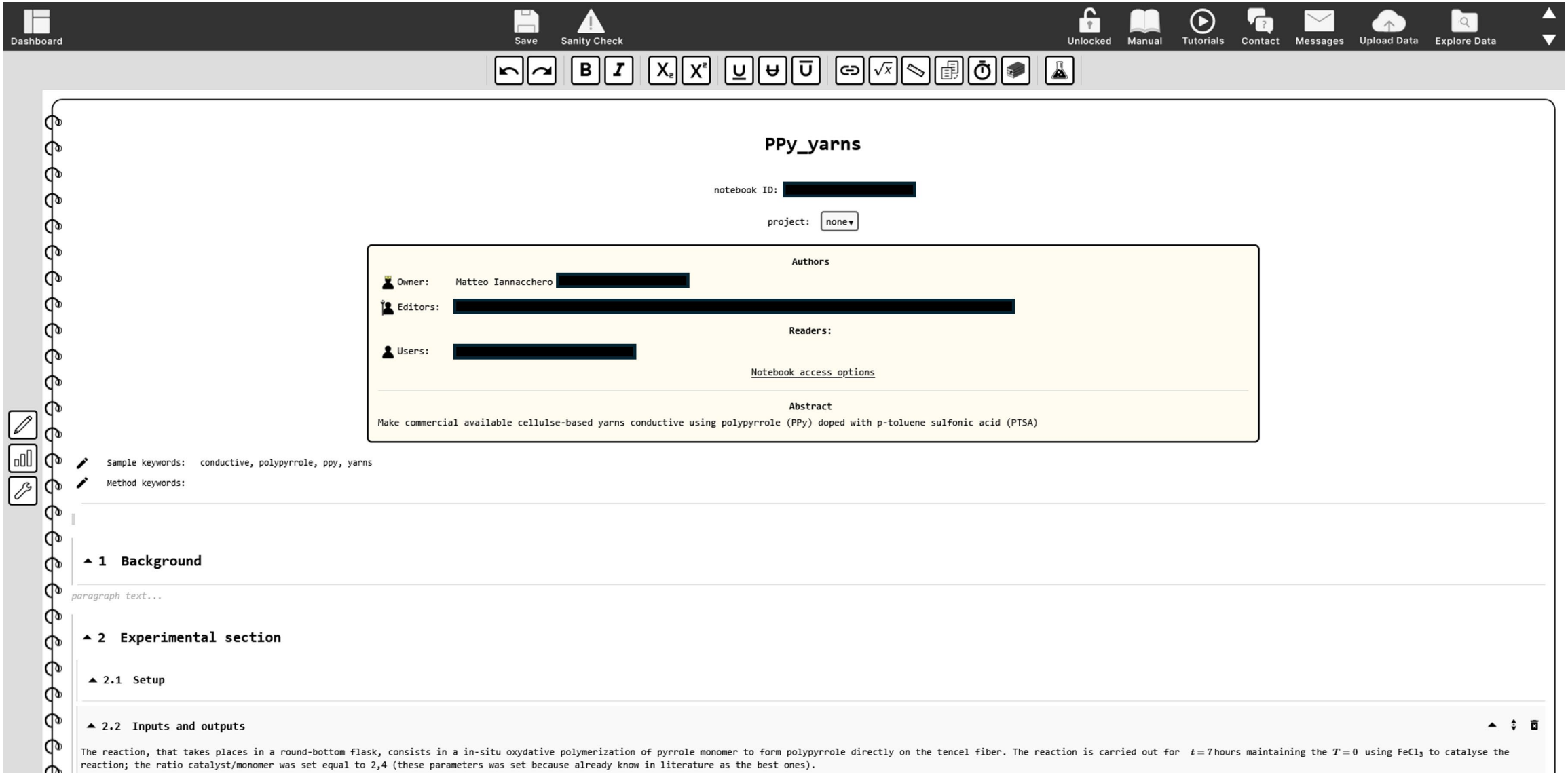
Project: active_learning_demo
template
(Computational)
Unsorted
PLA-triboelectric-garment
(Experimental)
Supercapacitor DTU
(Experimental)
PPy_yarns
(Data collection)
Acoustic Resonator / Carbon-based Microphone
(Experimental)
DHAB Actuating fibers
(Experimental)
Interfacial Complexation Summary
(Experimental)
Lupini project
(Computational)
AIyarn - Machine Learning for e-textile
(Experimental)

AMAD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PPy_yarns
notebook ID:
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Authors
Owner:
Matteo Iannacchero
Editors:
Readers:
Users:
Notebook access options
Abstract
Make commercial available cellulse-based yarns conductive using polypyrrole (PPy) doped with p-toluene sulfonic acid (PTSA)
Sample keywords:
conductive, polypyrrole, ppy, yarns
Method keywords:
1 Background
paragraph text...
2 Experimental section
2.1 Setup
2.2 Inputs and outputs
The reaction, that takes places in a round-bottom flask, consists in a in-situ oxydative polymerization of pyrrole monomer to form polypyrrole directly on the tencel fiber. The reaction is carried out for $t = 7$ hours maintaining the $T = 0$ using $FeCl_3$ to catalyse the reaction; the ratio catalyst/monomer was set equal to 2,4 (these parameters was set because already know in literature as the best ones).

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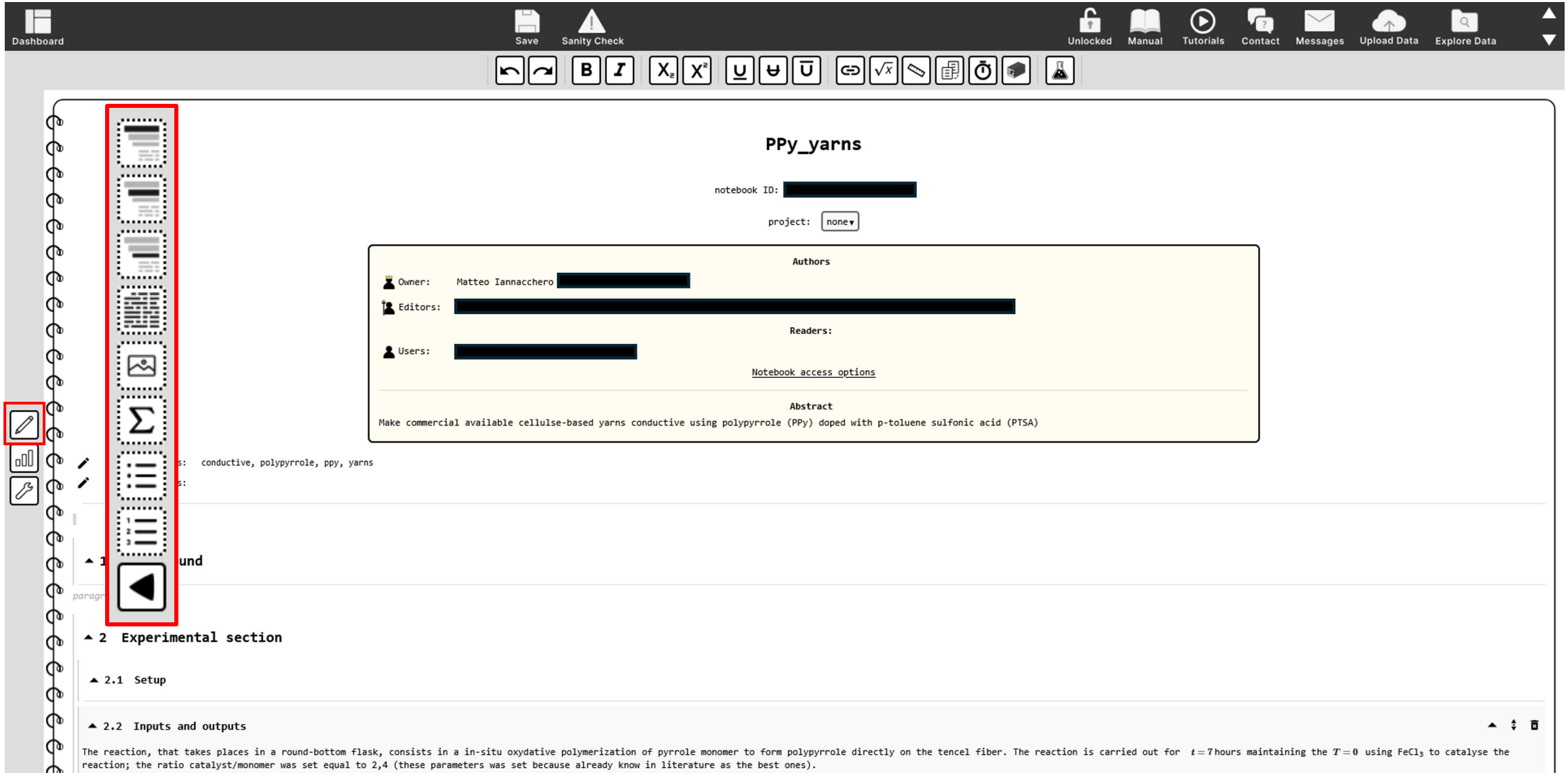
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project: none
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Editors:
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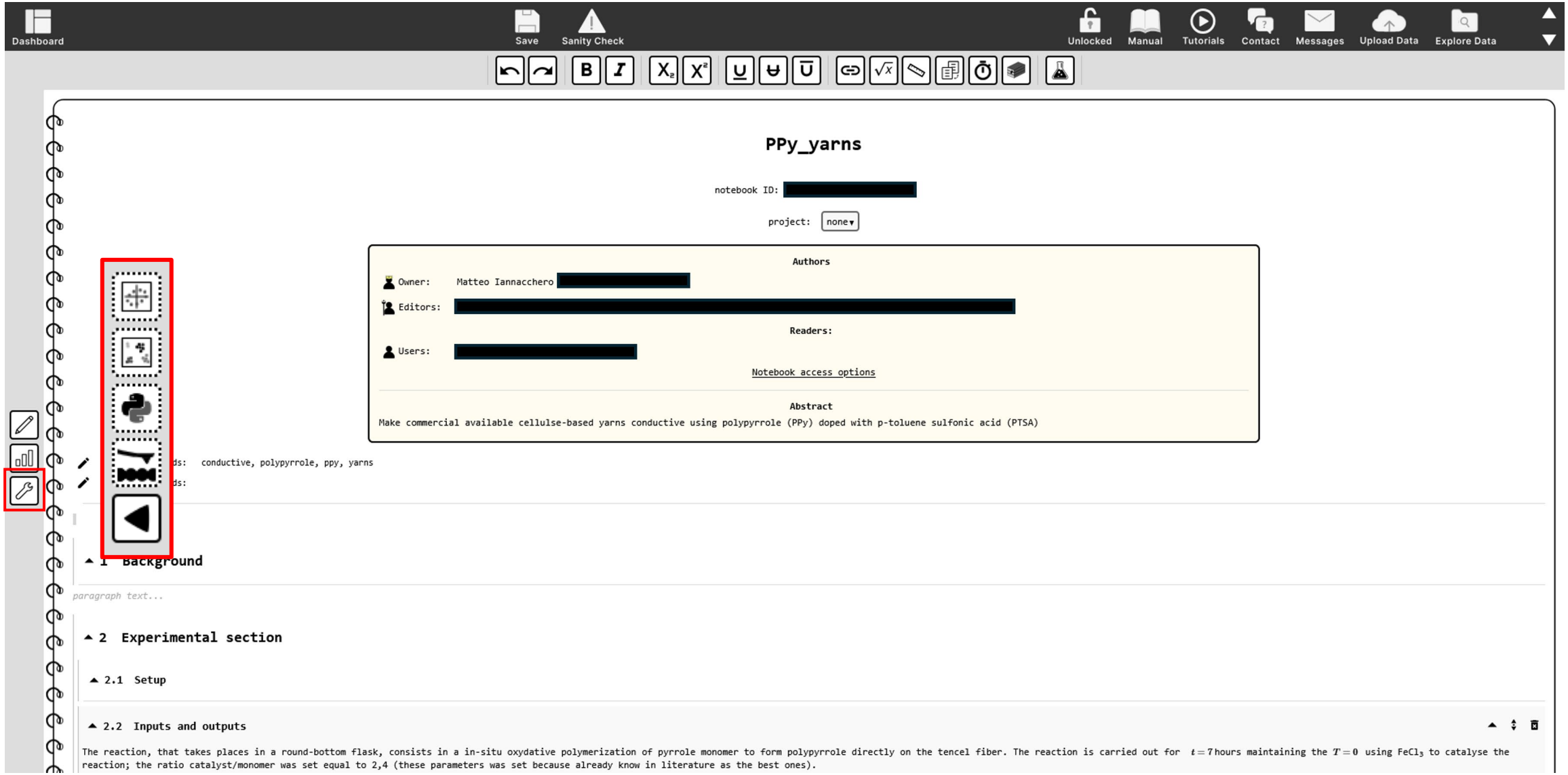
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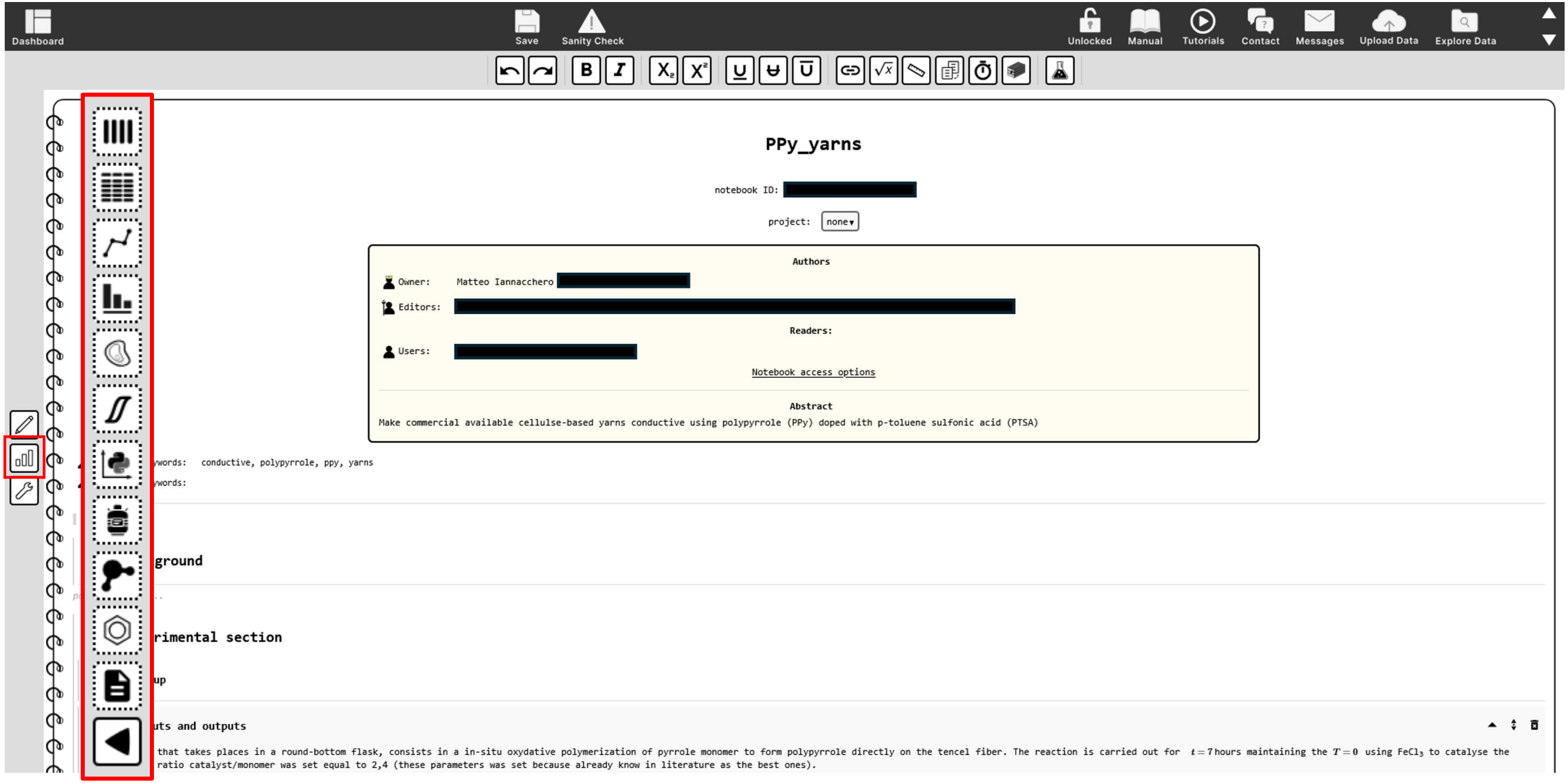
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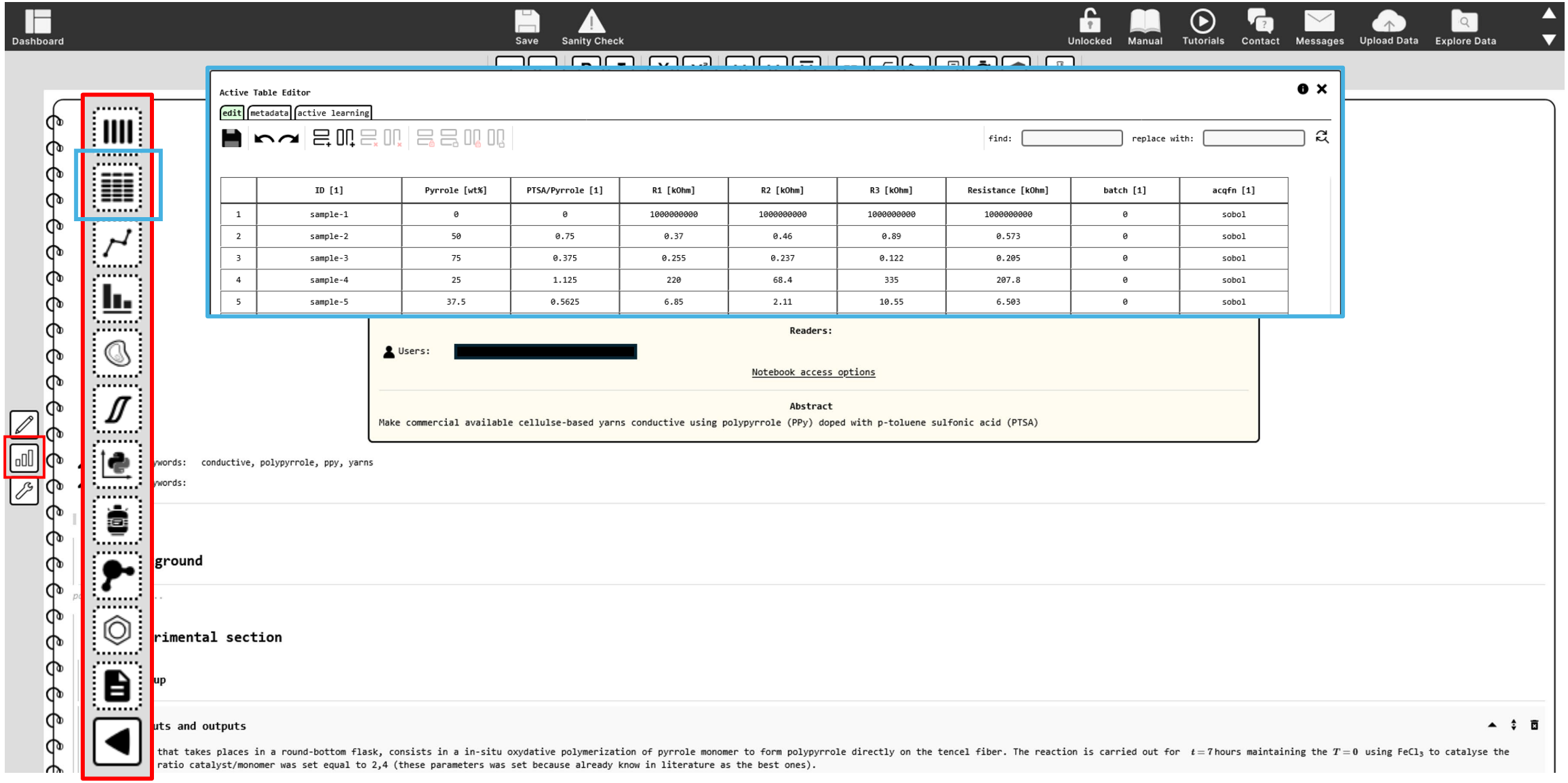
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replace with:
ID [1] | Pyrrole [wt%] | PTSA/Pyrrole [1] | R1 [kOhm] | R2 [kOhm] | R3 [kOhm] | Resistance [kOhm] | batch [1] | acqfn [1]
1 | sample-1 | 0 | 0 | 1000000000 | 1000000000 | 1000000000 | 1000000000 | 0 | sobol
2 | sample-2 | 50 | 0.75 | 0.37 | 0.46 | 0.89 | 0.573 | 0 | sobol
3 | sample-3 | 75 | 0.375 | 0.255 | 0.237 | 0.122 | 0.205 | 0 | sobol
4 | sample-4 | 25 | 1.125 | 220 | 68.4 | 335 | 207.8 | 0 | sobol
5 | sample-5 | 37.5 | 0.5625 | 6.85 | 2.11 | 10.55 | 6.503 | 0 | sobol
Readers:
Users:
Notebook access options
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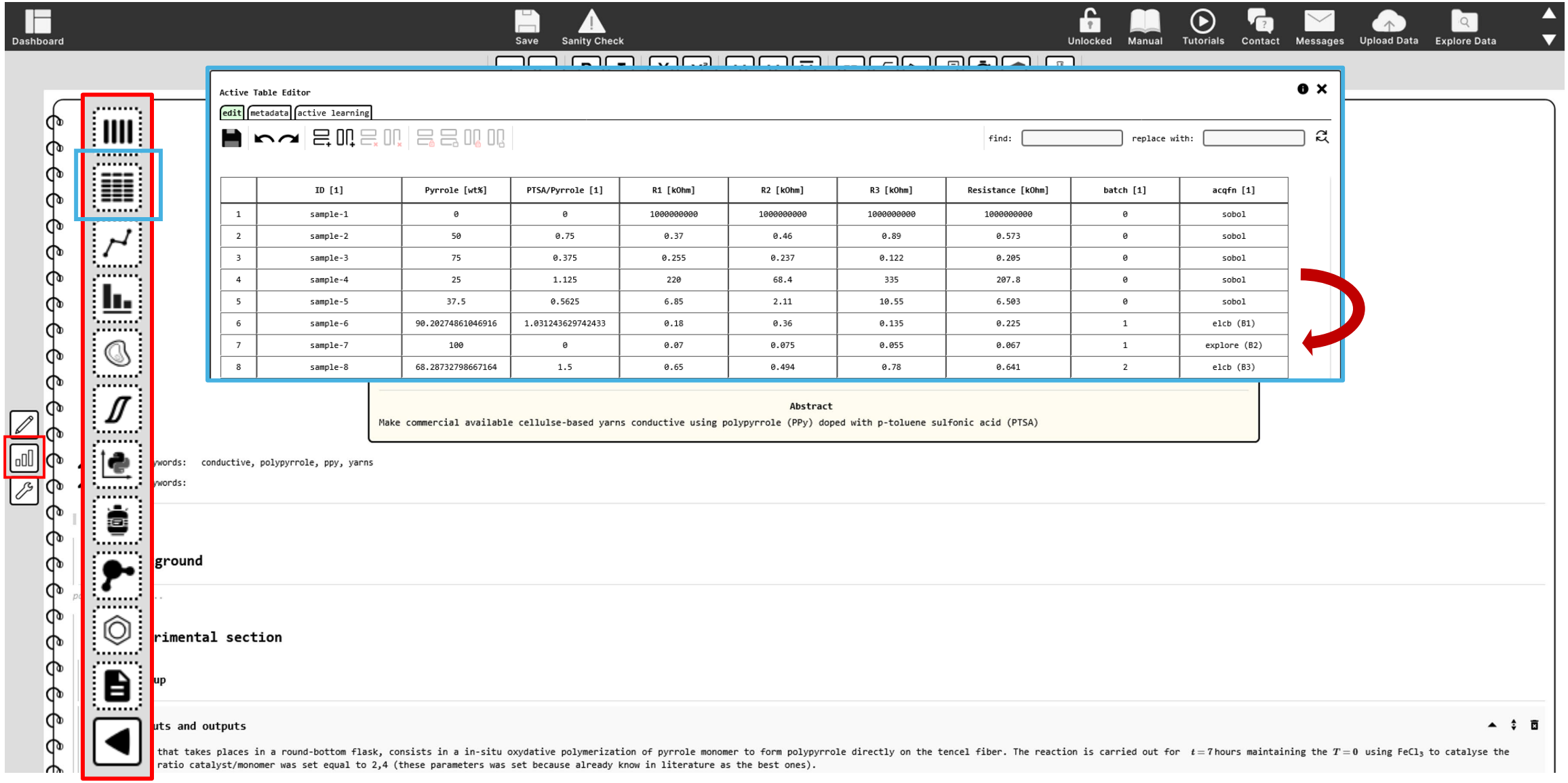
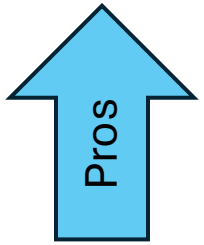


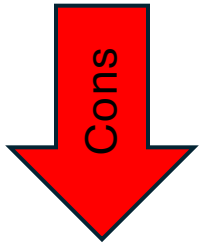
	ID [1]	Pyrrole [wt%]	PTSA/Pyrrole [1]	R1 [kOhm]	R2 [kOhm]	R3 [kOhm]	Resistance [kOhm]	batch [1]	acqfn [1]
1	sample-1	0	0	1000000000	1000000000	1000000000	1000000000	0	sobol
2	sample-2	50	0.75	0.37	0.46	0.89	0.573	0	sobol
3	sample-3	75	0.375	0.255	0.237	0.122	0.205	0	sobol
4	sample-4	25	1.125	220	68.4	335	207.8	0	sobol
5	sample-5	37.5	0.5625	6.85	2.11	10.55	6.503	0	sobol
6	sample-6	90.20274861046916	1.031243629742433	0.18	0.36	0.135	0.225	1	elcb (B1)
7	sample-7	100	0	0.07	0.075	0.055	0.067	1	explore (B2)
8	sample-8	68.28732798667164	1.5	0.65	0.494	0.78	0.641	2	elcb (B3)

AMAD – Pros and Cons



- Extremely useful for ML implementation
- Easy data sharing
- Confidentiality

Thank you!



- Not user friendly to upload/download files
- Lack of hardware to substitute a physical lab notebook
- In the beginning bugs made me (and my colleagues) lose data - and time