
BMicro Documentation

Release 0.3.1

Paul Müller

Jun 29, 2022

CONTENTS:

1	Getting started	3
1.1	Installation	3
1.2	Citing BMicro	3
2	Code reference	5
3	Development	7
3.1	Development workflow	7
3.2	Documentation	7
3.3	Tests	8
3.4	Making a new release	8
3.5	Continuous integration	8
4	Changelog	9
4.1	version ## 0.3.0 - 2022-06-29	11
4.2	version	11
4.3	version ### Added	11
4.4	version - Implement batch evaluation #193	11
4.5	version - Add option to export data #189	11
4.6	version - Enable calibrating all calibrations at once #192	11
4.7	version	11
4.8	version ### Changed	11
4.9	version - Bump bmlab to version 0.2.1 #190	11
4.10	version - Show extraction points half transparent #191	11
4.11	version - Code cleanup #194	11
4.12	version	11
4.13	version ### Fixed	11
4.14	version - Fix race condition in case of slow evaluation #184	11
4.15	version - Update preview image on new file load #196	11
4.16	version	11
4.17	version ## 0.2.8 - 2022-05-13	11
4.18	version	11
4.19	version ### Fixed	11
4.20	version - Use correct bmlab version for macOS DMG packages #183	11
4.21	version	11
4.22	version ## 0.2.7 - 2022-05-12	11
4.23	version	11
4.24	version ### Added	11
4.25	version - Properly handle bmlab exceptions #180	11
4.26	version	11

4.27	version ### Fixed	11
4.28	version - Don't crash when switching to multi-peak fit during evaluation #181 #182	11
4.29	version - Fix DMG packages for macOS by locking shapely version #179	11
4.30	version	11
4.31	version ## 0.2.6 - 2022-05-06	11
4.32	version	11
4.33	version ### Added	11
4.34	version - Implement two-peak Brillouin fitting #167 #168	11
4.35	version - Allow to toggle aspect ratio for 2D data #171	11
4.36	version	11
4.37	version ### Fixed	11
4.38	version - Check x-limits before setting to prevent warning #172	11
4.39	version	11
4.40	version ## 0.2.5 - 2022-04-25	11
4.41	version	11
4.42	version ### Added	11
4.43	version - Add calibration options dialog #162	11
4.44	version	11
4.45	version ### Changed	11
4.46	version - Show calibrations in correct temporal order #164	11
4.47	version - Show non-averaged fit for each calibration image #165	11
4.48	version	11
4.49	version ### Fixed	11
4.50	version - Fix small layout glitch in extraction view #161	11
4.51	version	11
4.52	version ## 0.2.4 - 2022-04-12	11
4.53	version	11
4.54	version ### Added	11
4.55	version - Allow to manually set data range #159	11
4.56	version	11
4.57	version ### Changed	11
4.58	version - Make circle-fit half-transparent, show points on top #157	11
4.59	version	11
4.60	version ### Fixed	11
4.61	version - Fix opening broken/empty data sets #156	11
4.62	version - Fix automatic color scale for 2D data #158	11
4.63	version	11
4.64	version ## 0.2.3 - 2022-04-07	11
4.65	version	11
4.66	version ### Fixed	11
4.67	version - Fix showing 2D data #154	11
4.68	version	11
4.69	version ## 0.2.2 - 2022-03-22	11
4.70	version	11
4.71	version ### Changed	11
4.72	version - Code cleanup #145	11
4.73	version	11
4.74	version ### Fixed	11
4.75	version - Bring back multiprocessing support #149	11
4.76	version - Don't open multiple instances on Win when evaluating #147	11
4.77	version - Don't open multiple instances on MacOS with DMG package #140	11
4.78	version	11
4.79	version ## 0.2.1 - 2022-03-21	11
4.80	version	11

4.81	version ### Changed	11
4.82	version - Code cleanup #135 #142	11
4.83	version	11
4.84	version ### Fixed	11
4.85	version - Don't crash when extracted peaks are on a straight line #141	11
4.86	version - Don't crash when trying to evaluate #139	11
4.87	version	11
4.88	version ## 0.2.0 - 2022-03-15	11
4.89	version	11
4.90	version ### Added	11
4.91	version - Implement showing 3D data #128	11
4.92	version - Remember last used folder #132	11
4.93	version	11
4.94	version ### Fixed	11
4.95	version - Fix warning when file could not be opened #129	11
4.96	version - Fix build #131	11
4.97	version	11
4.98	version ## 0.1.6 - 2022-02-18	11
4.99	version	11
4.100	version ### Added	11
4.101	version - Add an about menu #119	11
4.102	version	11
4.103	version ### Changed	11
4.104	version - Update to PyQt6 to support M1 Macs #124	11
4.105	version	11
4.106	version ### Fixed	11
4.107	version - Request minimum required bmlab version #122	11
4.108	version - Pin Shapely to 1.8.0 #120 #121	11
4.109	version	11
4.110	version ## 0.1.5 - 2022-02-16	11
4.111	version	11
4.112	version ### Fixed	11
4.113	version - Adjust release pipeline to properly build and upload release artifacts #118 9347bce74f7bf1fb40ab823967f4be8490af47b9 eb5d7e7d2bcb4cf590e967a01a71d00aefcd3b5 . . .	11
4.114	version	11
4.115	version ## 0.1.4 - 2022-02-16	11
4.116	version	11
4.117	version ### Added	11
4.118	version - Add keyboard shortcuts for file actions #117	11
4.119	version - Allow finding peaks in extraction view for all calibrations #111	11
4.120	version - Implement automatic peak finding in calibration view #110	11
4.121	version - Implement automatically finding peaks #99	11
4.122	version - Allow to browse through calibration spectra #89	11
4.123	version - Show selected extraction points in table, allow editing #85	11
4.124	version - Show colorbar with labels in evaluation view #70	11
4.125	version - Automatically load session if it exists #67	11
4.126	version	11
4.127	version ### Changed	11
4.128	version - Add action to exit app #107	11
4.129	version - Deploy with python-3.9 #105	11
4.130	version - Update pyinstaller version #104	11
4.131	version - Require python >= 3.7 #103	11
4.132	version - Add more package requirements #98	11
4.133	version - Suppress mean of empty slice warning #95	11

4.134 version - Suppress useless warning #88	11
4.135 version - Automatically set image shape on orientation change #84	11
4.136 version - Adjust to streamlined bmlab interface #83	11
4.137 version - Adjust to changes in bmlab #82	11
4.138 version - Refactor use of session #81	11
4.139 version - Only check bmlab main branch in workflows #72	11
4.140 version	11
4.141 version ### Fixed	11
4.142 version - Fix rotation labels and make rotations more generic #114	11
4.143 version - Fix matplotlib deprecation warnings #115	11
4.144 version - Fix build on appveyor and for MacOS #116	11
4.145 version - Correctly show evaluation plot after closing a file #102	11
4.146 version - Fix crash when clicking if no file is loaded #101	11
4.147 version - Try to fix slow evaluation plot update #97	11
4.148 version - Recalculate derived values when calibration changes #90	11
4.149 version - Correctly scale the data if the unit is GHz #77	11
4.150 version - Only update necessary tab when switching tabs #76	11
4.151 version - Show measurement of arbitrary dimensionality correctly #74	11
4.152 version - Actually run pytest in checks #73	11
4.153 version	11
4.154 version ## 0.1.3	11
4.155 version	11
4.156 version - setup: use “pytest” command instead of deprecated “setup.py test”	11
4.157 version - ui: add app icon (#9)	11
4.158 version - ui: data tab (#11)	11
4.159 version - build: add Windows and macOS build pipeline (#1)	11
4.160 version	11
4.161 version ## 0.1.2	11
4.162 version	11
4.163 version - CI automation	11
4.164 version	11
4.165 version ## 0.1.1	11
4.166 version	11
4.167 version - Test CI automation	11
4.168 version	11
4.169 version ## 0.1.0	11
4.170 version	11
4.171 version - dummy release	11
 5 Bibliography	 13
 6 Indices and tables	 15

This is BMicro, a graphical user interface for Brillouin microscopy data evaluation. This is the documentation of bmlab version 0.3.1.

GETTING STARTED

1.1 Installation

To install BMicro, use one of the following methods:

- **from PyPI:** `pip install bmicro`
- **from sources:** `pip install .`

1.2 Citing BMicro

If you use BMicro in a scientific publication, please cite it with:

BMicro developers (2022), BMicro version X.X.X: Python library for the post-measurement analysis of Brillouin microscopy data sets [Software]. Available at <https://github.com/BrillouinMicroscopy/BMicro>.

CODE REFERENCE

TODO

DEVELOPMENT

This section gives an overview about everything you need to know if you wish to contribute to [bmlab](#) or [BMicro](#).

3.1 Development workflow

We use [GitHub projects](#) to manage the development workflow of [bmlab](#) and [BMicro](#). The main development project board is [Brillouin Evaluation in Python](#).

The development is split into “User Stories”, each of which is a collection of issues (identified via titles in the issues). The current work in progress (WIP) branch is named according to the currently active user story (e.g. *1-smoke-test*). Issues that are not part of the current user story should still be addressed in the current WIP branch.

Once you wish to address an issue, drag it from the “Open” or “Ready” column of the project board to the “In progress” column. Once you finished working on an issue, drag it to the “Done” column, but don’t close it yet (It should be discussed first in the dev meeting).

Notes:

- Please write test functions and keep code coverage above 90%.
- Please make sure to always edit the changelog for [BMicro](#) or [bmlab](#).
- Please try to always pull with rebase

```
git pull --rebase
```

instead of

```
git pull
```

to prevent confusions in the commit history.

3.2 Documentation

It is always helpful to have code examples and thorough descriptions in a documentation. We use [sphinx-autodoc](#) for the [code reference](#), which means that the docstrings of your functions and classes are automatically rendered. Please make sure that this is working properly - go to the docs directory and execute:

```
pip install -r requirements.txt
sphinx-build . _build
```

This will create a file `_build/index.html` which you can open in your favorite browser. This also applies to [bmlab](#).

3.3 Tests

We try to adhere to test-driven development. Please always write test functions for your code. Make sure you have the required packages installed:

```
pip install -r tests/requirements.txt
```

You can run all tests via

```
python -m pytest tests
```

To check for code coverage, make sure the *coverage* Python package is installed and run

```
coverage run --source="bmicro" -m pytest tests
coverage report
```

3.4 Making a new release

The release process of BMicro is completely automated. All you need to know is that you have to create an incremental tag:

```
git tag -a "0.1.3"
# or (if you have set up GPG)
git tag -s "0.1.3"
# and finally
git push --tags
```

For more information on how automatic deployment to PyPI works, please read on.

3.5 Continuous integration

The following things are automated:

- pytest and flake8 on Linux, macOS, and Windows via GitHub Actions: <https://github.com/BrillouinMicroscopy/BMicro/actions?query=workflow%3AChecks>

You should always check that all checks pass before you merge a pull request (A green state on your local machine does not mean a global green state).

- automatic deployment to PyPI on tag creation via GitHub Actions: <https://github.com/BrillouinMicroscopy/BMicro/actions?query=workflow%3A%22Release+to+PyPI%22>

Paul Müller created the **BMicro** package on PyPI and gave the user `ci_bm` permission to upload new releases. The password for this user is an [organization secret](#).

- documentation is built automatically (for all tags and for the latest commit to the main branch) on readthedocs: <https://readthedocs.org/projects/BMicro/builds/>
- coverage statistics are done with codecov: <https://codecov.io/gh/BrillouinMicroscopy/BMicro>

Please try stay above 90% coverage.

Badges for all of these CI tasks are in the main `README.rst` file.

CHANGELOG

List of changes in-between bmlab releases.

4.1 version ## 0.3.0 - 2022-06-29

4.2 version

4.3 version ### Added

4.4 version - Implement batch evaluation #193

4.5 version - Add option to export data #189

4.6 version - Enable calibrating all calibrations at once #192

4.7 version

4.8 version ### Changed

4.9 version - Bump bmlab to version 0.2.1 #190

4.10 version - Show extraction points half transparent #191

4.11 version - Code cleanup #194

4.12 version

4.13 version ### Fixed

4.14 version - Fix race condition in case of slow evaluation #184

4.15 version - Update preview image on new file load #196

4.16 version

4.17 version ## 0.2.8 - 2022-05-13

4.18 version

4.19 version ### Fixed

4.20 version - Use correct bmlab version for macOS DMG packages

4.1. version ## 0.3.0 - 2022-06-29

4.21 version

BILBLIOGRAPHY

INDICES AND TABLES

- `genindex`
- `modindex`
- `search`