



Academic Labbook Plugin for WordPress

A plugin for sustainable academic research on the
largest blogging platform on the web

Dr Sean Leavey

Max Planck Institute for Gravitational Physics (Albert Einstein Institute)
2021-09-21



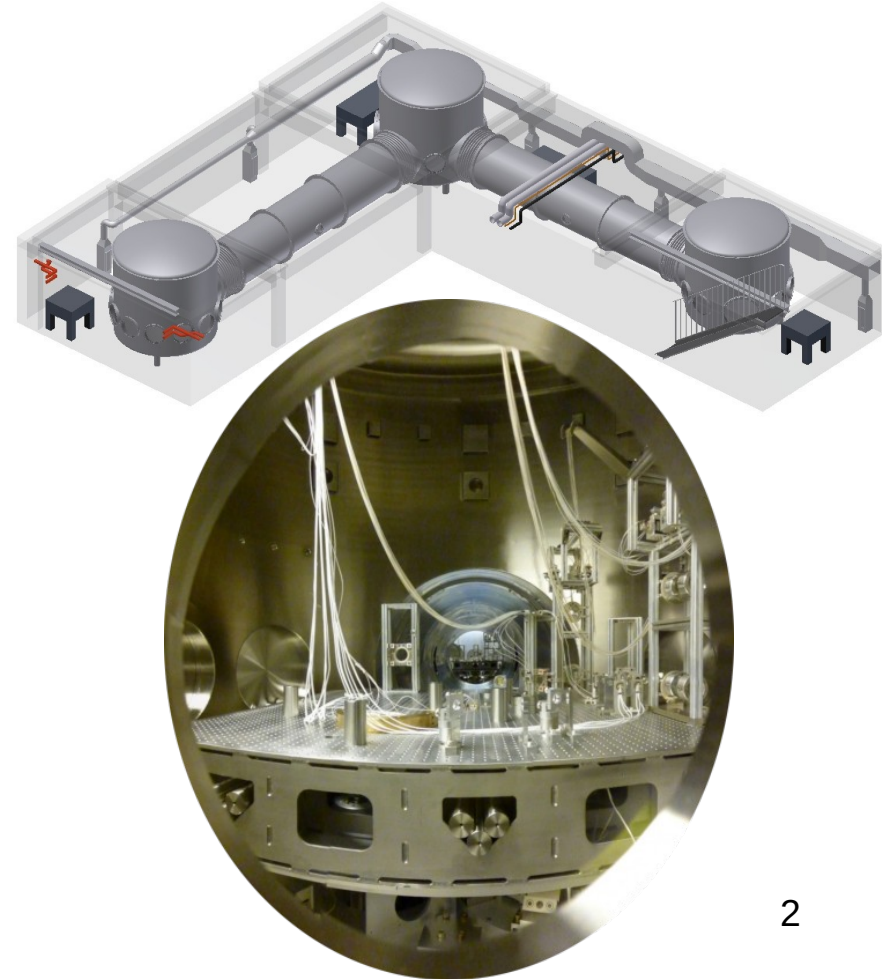
Max-Planck-Institut
für Gravitationsphysik
ALBERT-EINSTEIN-INSTITUT



MAX-PLANCK-GESELLSCHAFT

Who am I and why do I care about ELNs?

- Experimental physicist at MPI for Gravitational Physics in Hannover in the 10 m prototype group
- Long running experiment: many generations of students and postdocs have worked on the experiment since 2008
- “Learning the ropes” often only possible directly from others, rather than reading their notes - not optimal!
- **I believe people are happy to document their work to a higher level if given the right tools!**



What this talk is about

- I developed a custom ELN for my group to “scratch an itch”
- Features focused on linking information and group organisational matters – **tries to make life easier**
- Now used by ca. 20 other groups
- Aimed at observational fields – less suitable for those with stricter labbook regulations (but WordPress could in principle work for those too)
- I'll talk about:
 - what was wrong with the tools we used to use
 - my tool and how we use it
 - sustainability of ELN platforms



Calendar Logbooks LIGO DCC LIGO Wiki AEI Intranet Git Server Wolke7 Share Website

AEI 10m Prototype

Logbook

AEI 10m prototype overview Reference information HiWi tasks

10 m prototype budget estimate

44144 Sean Leavey 1 revision Edit
2021-09-15 at 09:13 (last edited) 2021-09-16 at 09:36

Lab particle counts warning

44190 Lab Edit
2021-09-19 at 09:15

OMC - glueing mirrors to the breadboard - documentation

44163 Matteo Carlassara and Philip Koch 1 revision Edit
2021-09-17 at 11:52 (last edited) 2021-09-17 at 11:53

Bachelor or Master project

44171 Robin Kirchhoff, Luise Kranzhoff and Johannes Lehmann Edit
2021-09-17 at 07:49

We were discussing about a follow up bachelor or master project to Luis work. This was triggered by discussions with Joris van Heijningen and Brian Lantz in the poster session and by the fact that we would benefit from it ourselves. The ideas: Improve the current design by making it significantly lighter and modifying a [...]

Homodyne quadrature interferometers (HoQIs) Seismic isolation Project ideas 1 Comment

HoQI at BS - cable plan

44164 Robin Kirchhoff 1 revision Edit
2021-09-17 at 07:25 (last edited) 2021-09-17 at 07:25

This is the cable plan for the HoQIs being installed at our BS intermediate mass. We will use standard cables except for the ones from suspension cage to HoQIs. The HoQIs will have the same pin-out as the LIGO BOSEMS which use 1&6, 2&7, 4&9 instead of 3&8. EAGLE file here

Cables Homodyne quadrature interferometers (HoQIs) SQL beam splitter cables 2 Comments

Quick search... Go Advanced

Recent Revisions

- Sean Leavey on Project ideas (Page)
- Robin Kirchhoff on HoQI at BS - cable plan
- Sean Leavey on Beam splitter (Page)
- Sean Leavey on 10 m prototype budget estimate
- Sean Leavey on Main laser (Page)
- Robin Kirchhoff on In-vac huddle test HoQI
- Sean Leavey on High quantum efficiency photodiodes for SQL readout
- Robin Kirchhoff on High quantum efficiency photodiodes for SQL readout
- Johannes Lehmann on Vacuum system pumping
- Juliane von Wrangel on Influence of different fiber neck geometries on violin modes, fiber stretch and splicing process
- Sean Leavey on Coastline pre-IBF substrates arrived
- Janis Woehler on Coastline pre-IBF substrates arrived
- Johannes Lehmann on Coastline pre-IBF substrates arrived
- Alexander Heide on Violin mode - SQL fibre A1, A6, B1, B5, E9
- Sean Leavey on Coastline pre-IBF substrate polishing completed
- Sean Leavey on SN-MW: HV-1-1906072 (Inventory)
- Sean Leavey on SN-MW: HV-1-1906071 (Inventory)
- Juliane von Wrangel on Journal Club (Page)

Recent Comments

- Sean Leavey on HoQI at BS - cable plan
- Luise Kranzhoff on HoQI at BS - cable plan
- Sean Leavey on Bachelor or Master project
- Matteo Carlassara on OMC FSR analysis and HOM spacing estimation
- Sean Leavey on OMC FSR analysis and HOM spacing estimation
- Sean Leavey on Beckhoff server down
- Sean Leavey on Beckhoff server down
- Johannes Lehmann on Some thoughts about invacuum EOM heat dissipation
- Harald Lueck on Some thoughts about

What I used to use...

...early PhD: rudimentary web front end for text files stored in a version control system

- ✓ revision control (via SVN)
- ✗ images separate from text
- ✗ difficult to use for novices
- ✗ no categories, tags, etc.
- ✗ no search tools
- ✗ custom software platform

Speedmeter Lab-Book Lab-Book

Welcome to the online lab-book for the Speedmeter Lab-Book.

Logged in as SeanL.

[Misc Files](#)

[Notes](#)

Oct 18 '12 [beam profile](#)

Oct 9 '12 [laser characterisation](#)

Jul 13 '12 [floorplan LISA corner](#)

Jul 13 '12 [Speedmeter LabBook created](#)

floorplan LISA corner Jul 13 '12 [\[down\]](#) [\[up\]](#)

Last change by stefan on 2012-07-18T12:35:33.648714Z (SVN revision 5)

[Filelist](#)

[notes.txt](#) [Speed Meter_option 3.JPG](#) [Speed Meter_option 2.JPG](#) [Speed Meter_option 1.JPG](#) [Speed Meter_IDEAL WORLD.JPG](#) [JIF LAB_old_02.jpg](#) [FLOOR PLAN_old_01.JPG](#) [FLOOR PLAN_ALL CONCEPTS.JPG](#) [FLOOR PLAN_ALL CONCEPTS.EPRT](#) [FLOOR PLAN_ALL CONCEPTS.DXF](#)

[Notes](#)

MOTIVATION:

=====

- Want to answer the question of how the LISA corner would/could look like if we were to use it for the Speedmeter Experiment.

- Keyquestion: What to do with the 2 tanks? Keeping them in there? Taking them out? If so how? Cutting them up or getting them through the wall?

SUMMARY:

=====

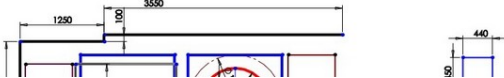
- work in progress !!!

=====

The attached picture shows the current situation in the corner. In red we have the two tanks, which are connected via 50cm of 'tube' which is welded to 50% onto each of the tanks. In green one sees the metal frame, purple is the optical table Angus currently uses. The two blue things on the right are a drawer cabinet and the safe for chemicals. The thick blue lines around the tanks indicate the clean-air tents.

[Pics](#)

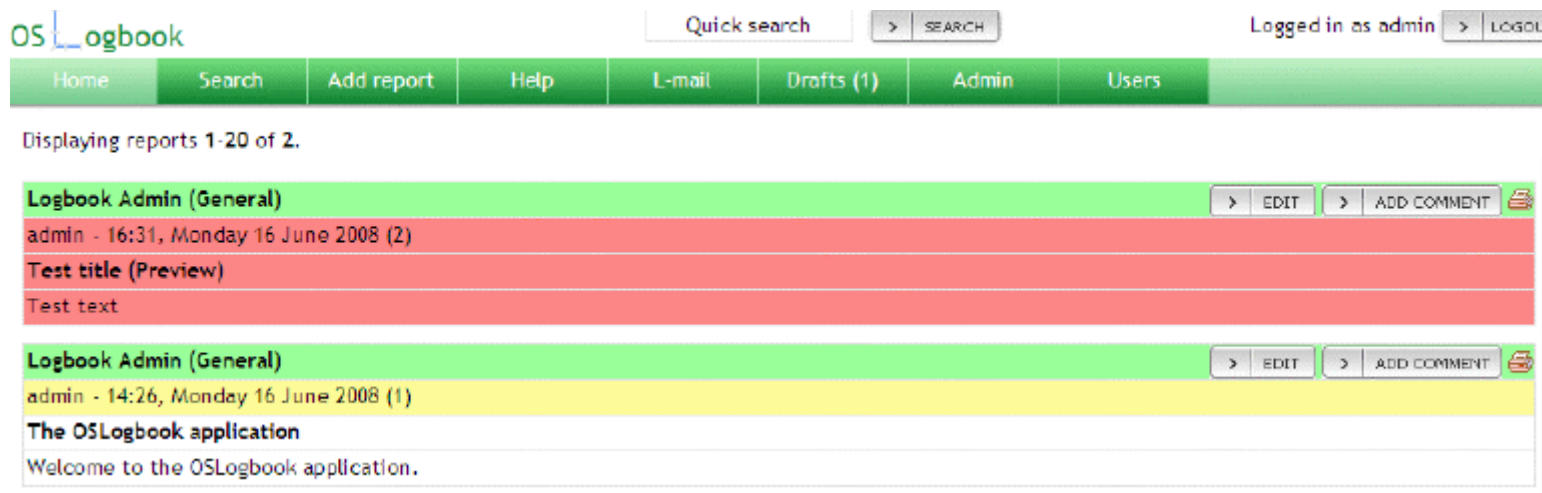
Speed Meter_option 3.JPG



The diagram is a technical drawing of a laboratory setup. It shows a top-down view of a corner area. Dimensions are indicated: 1250, 100, 3550, 440, and 90. Various components are labeled with colors: red for tanks, green for metal frame, purple for optical table, and blue for a drawer cabinet and safe. Thick blue lines around the tanks indicate clean-air tents. A circular component is also shown in the center.

What I used to use...

...mid PhD: custom software from Virgo collaboration



- ✓ categories and subcategories
- ✓ keyword search
- ✓/✗ WYSIWYG editor, but doesn't support inline images
- ✗ no revision control (intentional)
- ✗ custom software platform

What I used to use...

...late PhD: WordPress with lots of other peoples' plugins

- ✓ WYSIWYG editor
- ✓ open source software (WordPress)
- ✓ revision control
- ✓ hierarchical categories, flat tags
- ✓ keyword search
- ✓ multiple authors per post
- ✗ no search by category / tag / authors
- ✗ relies on ~10 plugins, some practically abandoned

Speedmeter Labbook

Institute for Gravitational Research

Labbook Guide Wiki Website SVN Pressure Webcam Optical Layout

Do we need to control M6 and M7?

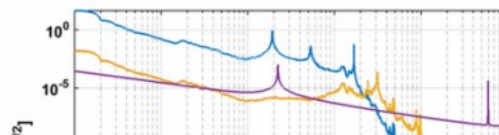
5729 Andreas Gläcke

2015-10-16 17:49 (last edited 2015-10-17 09:37)

When looking at plots of the residual motion of the auxiliary suspensions in an [earlier post](#) we agreed that we do not need to control M6. After proofreading my thesis draft Sebastian correctly pointed out to me that the reason was more a guess than a convincing proof. I therefore checked it again and now it looks as if we have to control M6.

The plot shows the product of the residual motion of the mirrors with the transfer function of the differential mode to the BHD. We compare it to the requirement curve which is the product of the sensitivity curve (calculated with the noise model for the design paper with some updated parameters (homodyne angle, input power, input mirror transmittivity)) and the transfer function of the differential mode to the BHD. The idea is that we compare the signal that we get in the BHD from residual motion to the signal that we want to be able to measure.

We see that the requirement is satisfied only for frequencies of more than a few hundred Hertz.



Search ...

Recent Comments

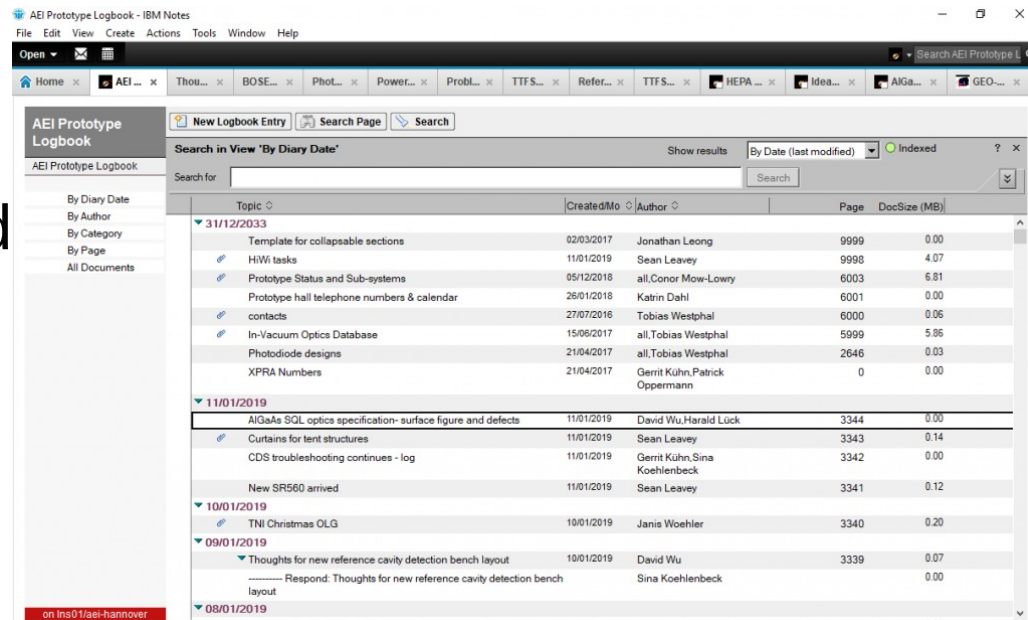
- Andreas Gläcke on Do we need to control M6 and M7?
- Conner Gettings on Auxiliary Suspension Build Instructions
- Stefan Hild on Auxiliary Suspension Build Instructions
- Sean Leavy on Do we need to control M6 and M7?
- Stefan Danilishin on QNLS for different BHD LO path lengths with HDA = 45 degrees using Finesse vs. Stefan D's Calculation
- Stefan Danilishin on What is the best homodyne angle for the Sagnac IFO to show its advantage over the Michelson one?
- Alasdair Houston on QNLS for different BHD LO path lengths with HDA = 45 degrees using Finesse vs. Stefan D's Calculation
- Stefan Danilishin on QNLS for different BHD LO path lengths with HDA = 45

- WordPress is a great platform to build an ELN on top of
- But still needed separate wiki to document equipment, inventory, procedures, etc.
 - But wiki rarely updated by group members, and used a different, non-WYSIWYG editor
- Those ~10 plugins are a maintenance nightmare for IT
 - Relies on good will of voluntary maintainers
- **We can still do better!**

[illegible]

A search for better ELN software

- In 2018, our IT director announced the phasing out of the institute's IBM Notes based ELN
- Asked us what we needed
- I offered to help select the replacement given my experience
- I searched for solutions that fit my own and IT's requirements
- **Nothing I found at the time** was really optimal for us





A search for better ELN software

- “WordPress + 10 plugins” was a decent solution, but **hard to maintain in the long term**
- Quality of the plugins was also not always great – bugs, typos, ads, etc.
- I offered to take the ~10 plugins we were using and merge them into one, tailoring features
- This made IT happier – one plugin to maintain rather than ~10
- I knew what I wanted for my group. IT also had their requirements:
 - Integration with single sign-on service
 - Ideally free and open source (but not hard requirement)
 - No vendor lock-in – less pain to migrate to newer system later



What makes a good ELN?

(in my opinion)

“single stop shop” for group:
ELN and wiki combined

good search and indexing

great editor with
mathematics support

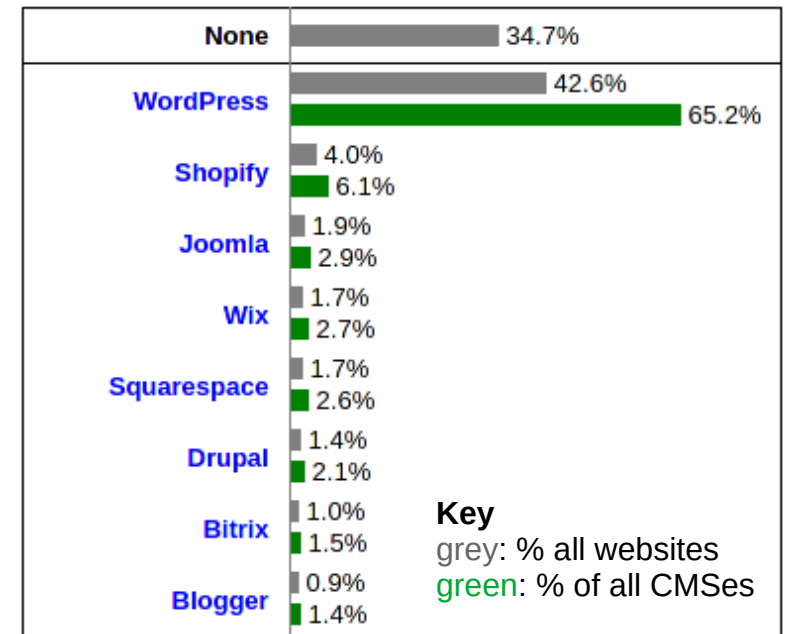
easy navigation between
posts/pages

edit history / versioning

bonus features:
inventory, plugins,
API support, etc...

What makes WordPress a good platform?

- Most widely used CMS on the web (42.6% of all websites!?)
- 1,749 employees working on it and related tech ([Automaticc](#))
- Huge ecosystem of themes, plugins, admin tools, support
- Existing plugins for single sign-on, LDAP, etc.
- First class mobile support
- Multi-site support (same server and user accounts, but multiple “blogs”)
- Benefit from others’ work on the hard parts of building an ELN: security, accessibility, editor, integrations, apps, etc.
- Nothing is permanent in software, but WordPress might stand the best chance



https://w3techs.com/technologies/overview/content_management

Combining ELN and wiki

The menu hierarchy takes you to pages that can contain wiki-like content: experiment overviews, procedures, manuals, administration information, etc...

The screenshot displays the AEI 10m Prototype Logbook interface. On the left, a sidebar menu lists various components: Open tasks, Seismic isolation, Sensing and control, Single arm test, SQL interferometer, Stray Light, Suspensions, Thermal noise interferometer, Environment monitoring, Input, Infrastructure, and Vacuum system. The main content area shows the 'AEI 10m Prototype' Logbook page. A red arrow points from the 'Output mode cleaner' link in the sidebar to the corresponding page. The page title is 'AEI 10m Prototype' with a subtitle 'Logbook'. Below the title, there's a navigation bar with links: 'AEI 10m prototype overview', 'Reference information', and 'HiWi tasks'. The main content area shows the 'Output mode cleaner' page, which includes a 'Contents' section with links to 'Overview page', 'Optical Design of the OMC', and 'Suspension design'. The 'Overview page' section is expanded, showing a list of topics: 'Optical design of the OMC' (with sub-points: Finesse vs losses, Define reflectivity requirements, FSR & curvature, Angle of incidence (astigmatism vs retro reflection)), 'Ordering substrates and breadboard' (with sub-points: Surface requirements, Reflective surfaces, Flat mirrors, Curved mirrors, Steering mirrors), and 'Deformation experiment (how much astigmatism can be compensated if at all)'. On the right side of the page, there's a 'Recent Revisions' section listing recent updates to various pages.

AEI 10m prototype overview ▾ Reference information ▾ HiWi tasks ▾

Open tasks

Seismic isolation

Sensing and control

Single arm test

SQL interferometer

Stray Light

Suspensions

Thermal noise interferometer

Environment monitoring

Input

Infrastructure

Vacuum system

budget estimate

100g SQL

Output mode cleaner

Parameters

Optics

OMC long lead items

OMC parameters

board – document

Philip Koch 1 revision Edit

2021-09-17 at 11:53

Kranzhoff and Johannes Lehmann Edit

AEI 10m Prototype

Logbook

AEI 10m prototype overview ▾ Reference information ▾ HiWi tasks ▾

Home > AEI 10m prototype overview > SQL interferometer > Output mode cleaner

25971 17 revisions Edit

- OMC long lead items
- OMC parameters

Overview page

Optical Design of the OMC

- Optical design of the OMC
 - Finesse vs losses
 - Define reflectivity requirements
 - FSR & curvature
 - Angle of incidence (astigmatism vs retro reflection)
 - Deformation experiment (how much astigmatism can be compensated if at all)
 - Optical layout
 - Breadboard size (depending on resonances)
- Ordering substrates and breadboard
 - Surface requirements
 - Reflective surfaces
 - Flat mirrors
 - Curved mirrors
 - Steering mirrors

Contents

- Overview page
- Optical Design of the OMC
- Suspension design

Quick search... Go Advanced

Recent Revisions

- Sean Leavey on Project Ideas (Page)
- Robin Kirchhoff on HoQI at BS - cable plan
- Sean Leavey on Beam splitter (Page)
- Sean Leavey on 10 m prototype budget estimate
- Sean Leavey on Main laser (Page)
- Robin Kirchhoff on In-vac huddle test HoQI
- Sean Leavey on High quantum efficiency photodiodes for SQL readout
- Robin Kirchhoff on High quantum efficiency photodiodes for SQL readout
- Johannes Lehmann on Vacuum system pumping
- Juliane von Wrangel on Influence of different fiber neck geometries on violin modes, fiber stretch and splicing process
- Sean Leavey on Coastline pre-IBF substrates arrived
- Janis Woehler on Coastline pre-IBF substrates arrived
- Johannes Lehmann on Coastline pre-IBF substrates arrived
- Alexander Hildebrand on Coarse mode SQL fiber A1

Easy post/page navigation

Cross-reference shown under each post/page

Cross-references

Links to

- > [Length and radius of curvature design for the OMC](#) 2019-06-06
- > [Angle of incidence for OMC](#) 2019-06-12
- > [OMC mirror reflectivities](#) 2019-06-12

Linked from

- > [Meeting minutes](#) 2019-06-14 2019-06-17
- > [Output mode cleaner](#) (Page)

Posts/pages referenced by current post, and other posts/pages referencing this one

Auto-generated table of contents on pages

Child pages show a breadcrumb trail

[Home](#) > [AEI 10m prototype overview](#) > [SQL interferometer](#) > [Output mode cleaner](#)

Output mode cleaner

25971 17 revisions Edit

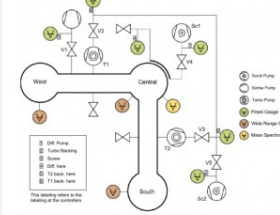
[Home](#) > [AEI 10m prototype overview](#) > [Vacuum system](#)

Vacuum system

24137 26 revisions Edit

Sub-pages:

- [Venting](#)
- [Residual gas analyser \(RGA\)](#)



Vacuum system overview.

Specification

Contents

- > [Specification](#)
- > [Surface area](#)
- > [Pumps and controllers](#)
- > [Screw pump](#)
- > [Scroll pumps](#)
- > [Turbo pumps](#)
- > [Control socket pinout](#)
- > [Disabling the operating hours warning light](#)
- > [Updating controller firmware](#)
- > [Pump rates](#)
- > [Pressure gauges and controllers](#)
- > [Heads](#)
- > [Readout](#)
- > [Relay interface](#)
- > [CDS channels](#)
- > [Valves and controllers](#)
- > [Valve controllers](#)
- > [Valve controller 1](#)
- > [Valve controller 2 \(addon and bypass\)](#)

Enhancement of core
WordPress feature

Good search and indexing

Advanced search: by author(s), date, categories, tags, etc.

Advanced Search

Keywords

Search...

Search

Matches words and phrases in titles, excerpts and content. Match exact phrases by wrapping them in double quotes, e.g. "lab work". Exclude words by prepending hyphens, e.g. -word.

Publication date

From to

Order

Order by

Authors

Posts with all of these authors Posts with any of these authors Posts with none of these authors

Aaron Jones (2)
Aftab Baig (13)
Alan Cumming (19)
Alessandro Bertolini (43)
Alexander Heidt (45)
Alexander Wanner (103)
Andreas Weidner (10)
Annika Hagemann (3)
Benno Willke (3)
Bob Taylor (12)

Aaron Jones (2)
Aftab Baig (13)
Alan Cumming (19)
Alessandro Bertolini (43)
Alexander Heidt (45)
Alexander Wanner (103)
Andreas Weidner (10)
Annika Hagemann (3)
Benno Willke (3)
Bob Taylor (12)

Aaron Jones (2)
Aftab Baig (13)
Alan Cumming (19)
Alessandro Bertolini (43)
Alexander Heidt (45)
Alexander Wanner (103)
Andreas Weidner (10)
Annika Hagemann (3)
Benno Willke (3)
Bob Taylor (12)

Categories

Posts with all of these categories Posts with any of these categories Posts with none of these categories

Actuators (30) Actuators (30) Actuators (30)

Categories

Search Categories

- ☐ Optics
 - ☐ Core (SQL) optics
 - ☐ 100g pitch problems
 - ☐ Monolithic ears
 - ☒ Welding
 - ☐ Crystalline coatings

[Add New Category](#)

Tags

Add New Tag

Separate with commas or the Enter key.

Most Used

[pemwatch](#) [Meeting minutes](#)
[SQL 100g optics](#) [Quote](#) [How-to](#)
[Scatterometer](#) [scratchometer](#) [EPICS](#)
[FiveNine](#) [photodiode](#)

Hierarchical categories
and tags for posts

Inspection of IBF treated 1" superpolished samples

43513 David Wu 1 revision Edit
2021-07-23 at 13:57 (last edited 2021-07-23 at 16:19)

Summary: Two of the super-polished samples sent to NTG for IBF testing were inspected under the microscope with the scatterometer. The biggest issue is the contamination of the optics, either for initial inspection at Hannover (e.g. looking at them in the optics preparation room) or at NTG. It seems like this was clear

Optics, Scatterometer, atomic force microscope (AFM), ion beam figuring (IBF), microscope, NTG, Leave

Edit history

Enhancement of core
WordPress feature

Edit summaries under posts/pages linking to diff view

Recent edits shown in
sidebar


History


#	Date	User	Information
44192	18 hours ago	Johannes Lehmann	clarified that we would not miniaturise the hoqi itself but the inertial sensor (current)
44176	3 days ago	Sean Leavey	
42724	3 months ago	Sean Leavey	
38603	9 months ago	Sean Leavey	added IBS scatter theoretical characterisation idea

1 2 3 ... 7 Next »

Front end view

Back end diff view

[Previous](#)  [Next](#)

 Autosave by [Johannes Lehmann](#)
18 hours ago (19 Sep @ 17:31)
[wp-content/uploads/2023/09/IBS-scatter-theoretical-characterisation-idea.pdf](#)

<!-- wp:heading -->

<h2>Available</h2>

<!-- /wp:heading -->

<!-- wp:heading {"level":3} -->

- <h3>Miniaturise **HoQIs** and use to improve table performance / improve design **of HoQI test suspension**</h3>

<!-- /wp:heading -->

<!-- wp:heading -->

<h2>Available</h2>

<!-- /wp:heading -->

<!-- wp:heading {"level":3} -->

+ <h3>Miniaturise **HoQI-based inertial sensor** and use to improve table performance / **possibly** improve design **more fundamentally**</h3>

<!-- /wp:heading -->













[Restore This Autosave](#)

Quick search...

Go

[Advanced](#)

Recent Revisions

-  Sean Leavey on [Project ideas](#) (Page)
-  Robin Kirchhoff on [HoQI at BS - cable plan](#)
-  Sean Leavey on [Beam splitter](#) (Page)
-  Sean Leavey on [10 m prototype budget estimate](#)
-  Sean Leavey on [Main laser](#) (Page)
-  Robin Kirchhoff on [In-vac huddle test HoQI](#)
-  Sean Leavey on [High quantum efficiency photodiodes for SQL readout](#)
-  Robin Kirchhoff on [High quantum efficiency photodiodes for SQL readout](#)
-  Johannes Lehmann on [Vacuum system pumping](#)
-  Juliane von Wrangel on [Influence of different fiber neck geometries on violin modes, fiber stretch and splicing process](#)
-  Sean Leavey on [Coastline pre-IBF substrates arrived](#)
-  Ianis Woehler on [Coastline pre-IBF substrates](#)

15

Great editor

WordPress since v5 has included a “block-based” editor making it easier to compose content.

Interactive controls in the editor with instant preview.

Lots of useful blocks built-in (tables, galleries, PDF embed, etc.) but can also add more via plugins.

Blocks can pull in data from external services using JavaScript

ALP adds a custom TeX block

TeX test

Here is some mathematical markup:

Formula:

`\frac{1}{2}`

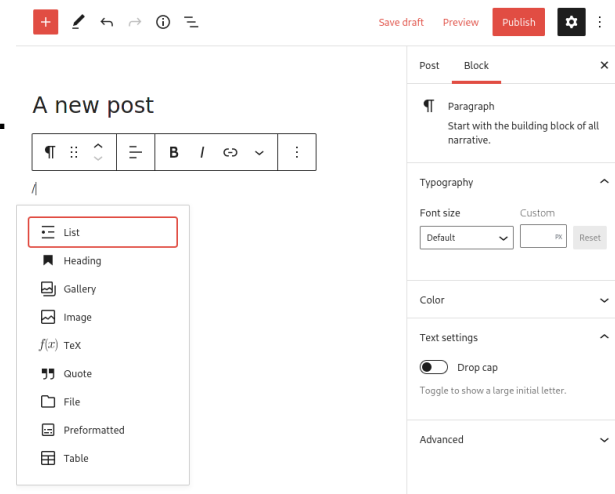
Type / to choose a block

TeX test

Here is some mathematical markup:

$$\frac{1}{2}$$

Type / to choose a block



TeX is rendered once you
click away from the edit
panel

Some other features

(Basic) inventory system

Home » Inventory » PT » PT-HVPSU1 » PT-HVPSU1-001

PT-HVPSU1-001

43621 [Edit](#)
[View 1 post associated with this item](#)

Info

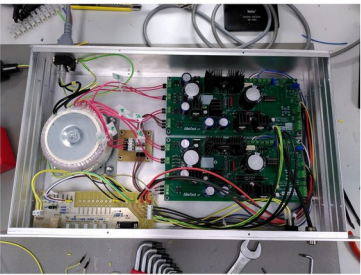
Contains two Elbatech HV supplies:

- SN-MW-HV-1-1906071
- SN-MW-HV-1-1906072

Location

E-workshop (not yet installed in lab).

Pictures



Notes

Templates: editor pre-populated with content on post creation

Core WordPress feature

Save draft Preview Publish

Add title

Documentation

Schematic

File

Upload a file or pick one from your media library.

[Upload](#) [Media Library](#)

Inputs and outputs

Describe the item's inputs and outputs. Useful information to include could be for example signal type (single ended, differential, floating, etc.), input or output impedance (zero, 50Ω, infinite, etc.), maximum input/output voltage, etc.

Location

Describe the item's location.

Notes

Add any other pertinent information such as links to relevant posts, observations of strange behaviour, etc.

Inventory Block

Status & visibility

Visibility: **Public**

Publish: **Immediately**

☐ Pending review

☐ Hide revisions
Do not display revisions on the post page

☐ Hide cross-references
Do not display posts linked to/from this one on the post page

Permalink

URL Slug:

The last part of the URL. [Read about permalinks](#) >

[View item](#)

<https://labbooks.wisc-harbor.org/de/record/labbooks/pemwatch/44190> >

Item image

Item Attributes

Parent Page:

Order:

Automatic posts from lab to logbook via REST API

Core WordPress feature

Lab particle counts warning

44190 [Lab](#) [Edit](#)
2021-09-19 at 09:15

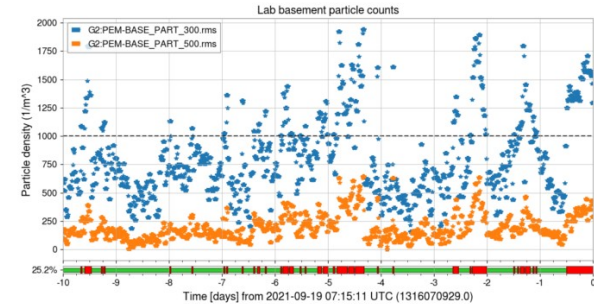
This is an automatically generated post from pemwatch. To configure this watchdog, see [this page](#).

Description

The lab basement particle counts have been out of range recently.

Plots

Lab basement particle counts

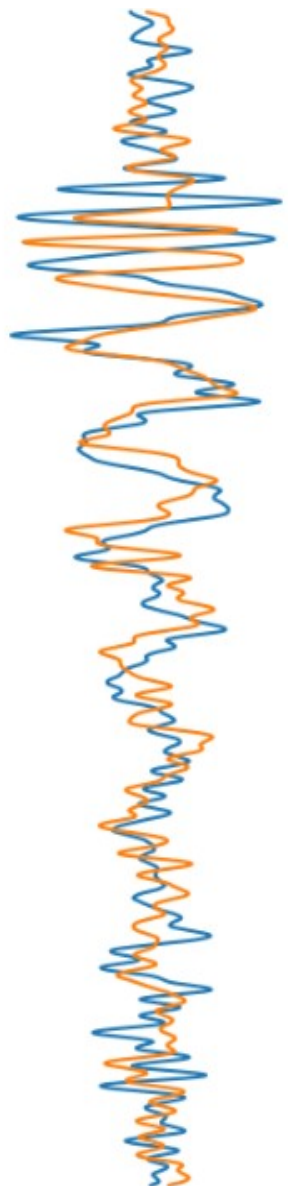


Lab temperature warning

44136 [Lab](#) [Edit](#)
2021-09-14 at 17:00

“Status” posts that don’t take up much vertical space on post lists

+ thousands of other free WordPress plugins to add further customisations



Time for a quick demo?



Potential downsides

ALP is not for all groups and organisations...

- ✗ ability to edit everything later (intentional in the case of ALP)
 - may not be compatible with requirements for your organisation
 - (✓ but changes do get tracked)
- ✗ usefulness as a long term archive requires discipline not to install too many additional WordPress plugins
 - WordPress's extensibility is not an entirely good thing
- ✗ not fully documented, especially on the user side (though WordPress docs are great)
- ✗ updates must be installed manually (may be automatic later)
- ✗ large changes made to WordPress core might disrupt plugin in future (but WordPress has maintained strict backwards compatibility so far)
- ✗ WordPress sites are under constant attack; regular updating and good IT security essential
- ✗✗ currently only one maintainer (me)

Given the points above, some groups might choose another solution – but this works really well for us and our collaborators



We use ALP for **almost everything** in my group!

...for new content

Experiment progress (measurements, changes, etc.): **new post**

Uploading photos from lab: **add to media library via Wordpress app or website**

Documenting short update (e.g. “lasers switched off”): **new status post**

Creating experiment overview, admin, static information: **new page**

Documenting equipment info (e.g. manual for oscilloscope, location, etc.): **new inventory item**

Getting everyone’s attention: **add a sticky post** (sticks to top of front page)

...for making our jobs easier, and group project management

Looking up procedures: **find checklist / instructions on a page**

Keeping track of project progress: **maintain pages with links to relevant posts / plans, continuously updated by those involved**

Finding old experimental results: **search using keywords, categories, tags, authors, etc.**

Checking for equipment location, abilities, “gotchas”, etc.: **check inventory page**

Remembering project ideas for summer students: **maintain a project ideas page**

Automatic weekly meeting agendas: **sort new posts in chronological order**

Linking meeting minutes to posts: **make a status post with cross-references to discussed posts**

We use the logbook as the “front page” of our experiment. Everything should be on there, or linked from there.

Who else uses ALP?

- ~10 groups at AEI Hannover (~100 people)
- Gravitational wave detector GEO600
- Various gravitational wave instrumentation groups
- So far groups from Germany, Netherlands, UK, and USA
- + a few others who I only know via GitHub/email



University
of Glasgow

Caltech



Returning to “what makes a good ELN?”

My opinion

Often overlooked is the **future sustainability of the ELN platform**.

My institute got burned by this when IBM increased licence fees for their Notes software to unaffordable levels.

We're trying to get rid of walled gardens in academia (MPG encourage use of open access journals), so **shouldn't we be building on top of open source and widely used software platforms?**

I think the worldwide research community is missing a **free, open source “killer app” ELN** that furthers MPG's open science principles.

My dream: MPG funds development of something like ALP and make it available to everybody! Can we and do we want to make this happen?



Thanks for listening!

Website: <https://alp.attackllama.com/>

Development on GitHub: <https://github.com/Academic-Labbook/>

My email (I'm happy to help you set it up): sean.leavey@aei.mpg.de

Example of a public instance of ALP: <https://logbooks.ifosim.org/>

“Test drive” site coming at some point when I have time

Developers, testers and users welcome!



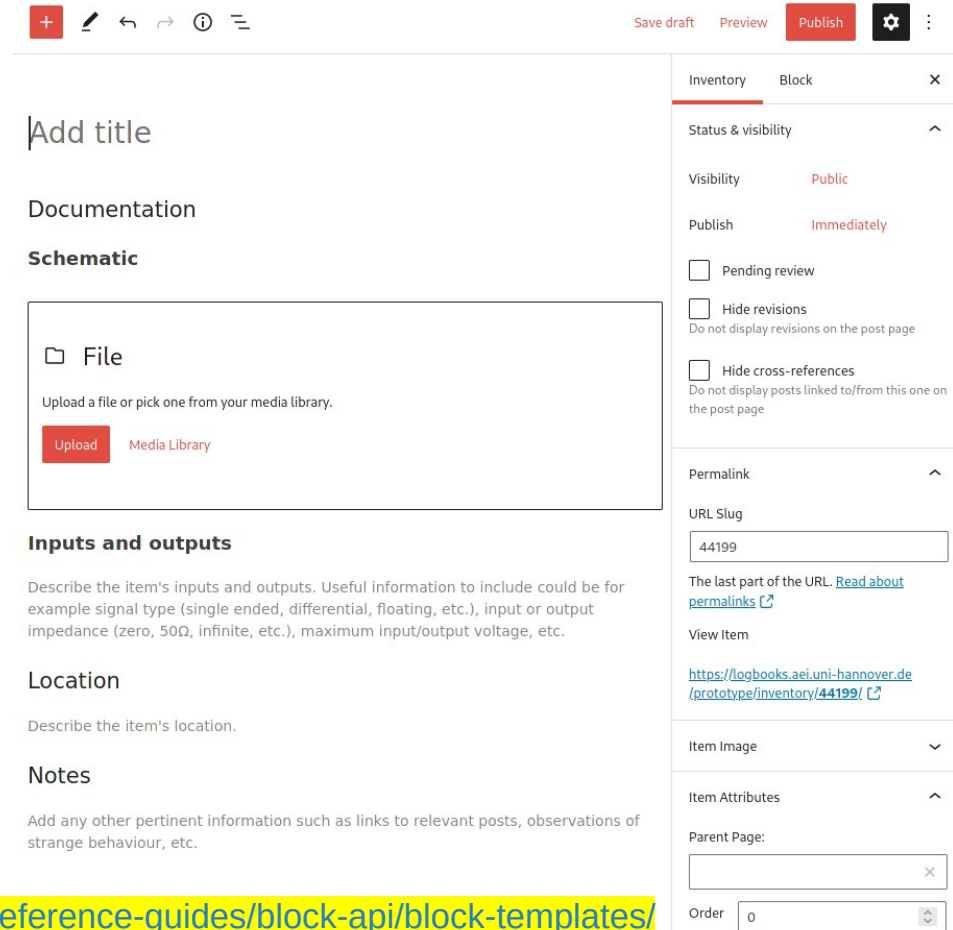
EXTRA SLIDES

WordPress post templates

The block editor can allow the user to choose (or require the use of) a template.

It's possible to use templates for the whole post, or just a section of it.

Currently only possible by writing a small plugin. Support for managing templates will eventually be added to the WordPress dashboard.



The screenshot displays the WordPress block editor interface. At the top, there are icons for adding blocks, undo, redo, and a menu. The main content area shows a post template for an 'Inventory' block. The template includes sections for 'Add title', 'Documentation', 'Schematic', 'Inputs and outputs', 'Location', and 'Notes'. The 'Schematic' section contains a 'File' block with an 'Upload' button and a 'Media Library' link. The 'Inputs and outputs' section has a text area for describing inputs and outputs. The 'Location' section has a text area for describing the location. The 'Notes' section has a text area for adding other pertinent information. On the right side, there is a sidebar with settings for the 'Inventory' block, including 'Status & visibility', 'Permalink', 'Item Image', and 'Item Attributes'.

Inventory Block

Status & visibility

Visibility Public

Publish Immediately

☐ Pending review

☐ Hide revisions
Do not display revisions on the post page

☐ Hide cross-references
Do not display posts linked to/from this one on the post page

Permalink

URL Slug
44199

The last part of the URL. [Read about permalinks](#)

View Item
<https://logbooks.aei.uni-hannover.de/prototype/inventory/44199/>

Item Image

Item Attributes

Parent Page:

Order 0



WordPress database structure

- WordPress uses a concept of “post types” and “taxonomies” internally
- These can be used to implement custom content types like inventory items, chemicals, etc. and custom categories or tags for other content types
- Allows many-to-many relationships between posts and terms, which can represent most information
- Allows arbitrary metadata to be associated with such posts and taxonomies too (e.g. key-value data)
- Lets you build custom applications on top of the WordPress platform
- Many aspects of the custom application can be managed in the admin dashboard via automatically generated controls, or with minimal additional code
- Plugins also available to manage custom post types and taxonomies if you don't write your own
- If such an ELN is migrated to a new service, the underlying data structures are relatively straightforward and similarly formatted (10 database tables used for ALL content)
- On the front-end, it's possible to create post views for particular post types, categories, tags, etc. (and combinations thereof)
- <https://wordpress.org/support/article/taxonomies/>

Cross-reference graph

For fun, plotted graph of cross-references for the Advanced LIGO logbook.

Essentially a “web of science” for a particular experiment. Also looks remarkably like typical sources of gravitational waves!

Adding colours to represent categories, authors, etc. will add additional insight – to do in the future

Code available on GitHub project.

