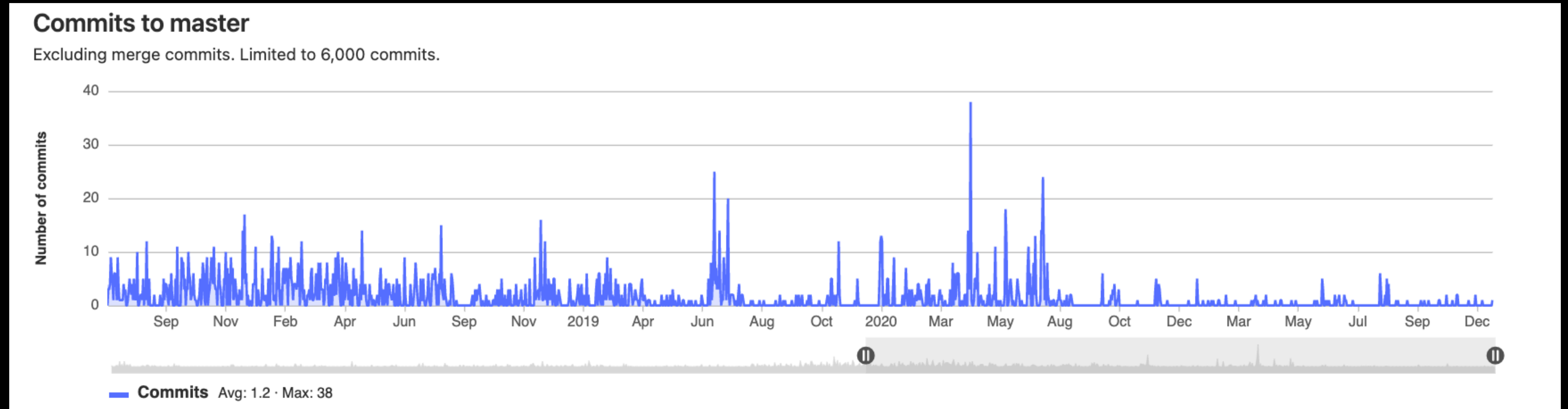


# Virtual OPAL Developer Meeting 2022 - Introduction



**Andreas Adelmann (Paul Scherrer Institut)**

# Content

1. Updates OPAL (A Adelman)
2. Updates on IPPL V 2.x (S Muralikrishnan)
3. New challenges in FEL modelling and consequences for OPAL (A Adelman)
4. pyOPAL (Ch Rogers)
5. 2022 releases (A Gsell)
6. Pressing open issues (all)

# Updates

\* 88 94 member in the active mailing list ([opal@lists.psi.ch](mailto:opal@lists.psi.ch))

\* +1 very active developer



Dr. Muralikrishnan Sriramkrishnan



# Latest OPAL release is: 2021.1.0

- New Undulator element with its own FDTD electromagnetic solver,
- LOWENERGYTHR attribute for energy loss calculation by PARTICLEMATTERINTERACTION command
- Energy loss calculation and beam scattering are available for all light ions
- Stopping power at low energy region
- ALPHA particles are supported in BEAM command
- ENABLEVTK option (default true) to control writing of voxel mesh output
- UTFN attribute has been added to Cyclotron and Source elements
- Gas stripping is now available for DEUTERON beams and H2P beams in AIR



# At present the focus in large is on:

- continue consolidation & code cleanup
- working on bugfixes / feature requests
  - 15 ~~15~~ bugs 19 ~~21~~ feature requests

\* delayed OPAL paper




# Current projects - 1

- P3M in OPAL (IPPL 1.0) (Sri & AA)
- IPPL 2.x (Sri & Matthias)
  - ✓ FFT based poisson solver
  - ✓ ORB
- Ch Rogers
  - FFA modeling (Ring element)
  - pyOPAL
- Sri & AA + MSc student
  - SwissFEL modeling

# Current projects - 2

- Prepare OPAL for IPPL 2.x (AA)
  - ✓ adapt cmake such that IPPL is an external library
  - ✓ header file adaption
- Tensor and/in Quaternion class



This is the documentation for an old version of boost. Click here for the latest Boost documentation.

“...one of the most highly regarded and expertly designed  
— Herb Sutter and Andrei Al

## QVM: Quaternions, Vectors, Matrices

### Quaternions, Vectors, Matrices

Out of the box Boost QVM defines generic yet simple [quat](#), [vec](#) and [mat](#) types. For example, the following snippet creates a quaternion object that rotates around the X axis: