Virtual OPAL Developer Meeting 2023 September

1. Updates OPAL (A Adelmann)
2. Updates on IPPL V 2.x (S Muralikrishnan)
3. A new 2 1/2 D solver (C Jolly)
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5. pyOPAL (Ch Rogers)
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7. Pressing open issues (all)

Virtual OPAL Developer Meeting 2023 September - Introduction

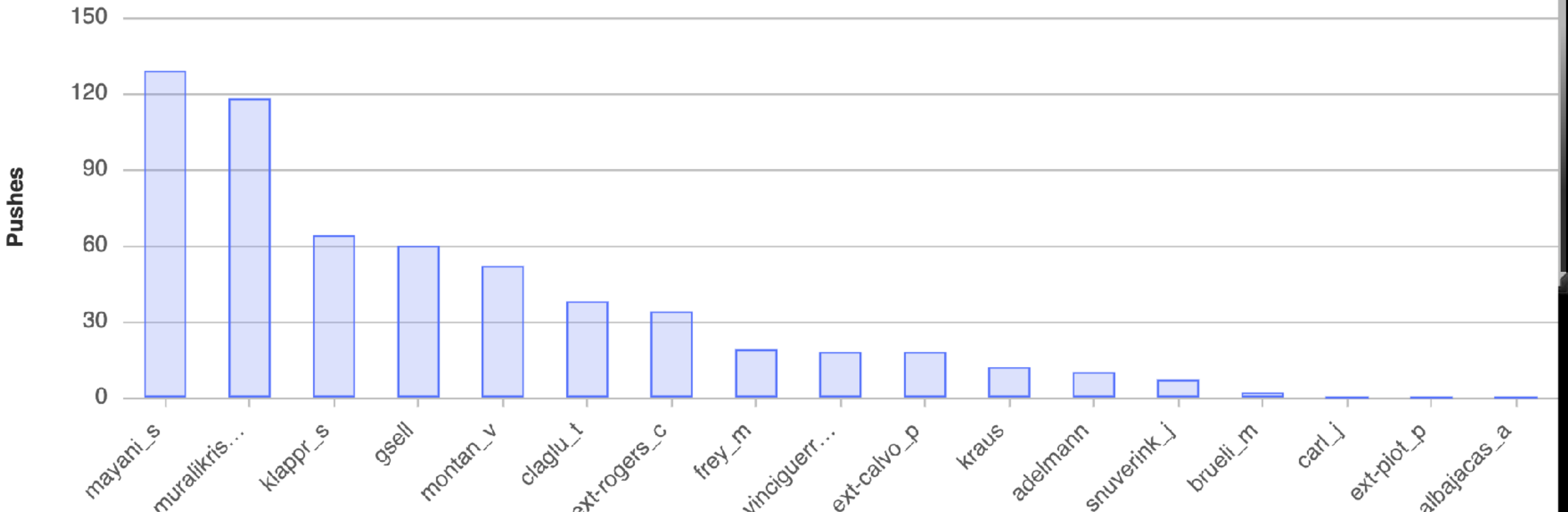
https://gitlab.psi.ch/groups/OPAL/-/contribution_analytics?start_date=2023-06-05

Pushes

295 pushes, more than **524.0** commits by **10 people** contributors.

Pushes

581 pushes, more than **1335.0** commits by **14 people** contributors.



A

Updates

- ~~101~~ 109 member in the active mailing list (opal@lists.psi.ch)
- no paper published

ISIS-PSI Possibilities

Accelerator code development: Joint development of the object-oriented particle accelerator library (OPAL).

Japan OPAL Meeting @ RIKEN

Japan OPAL Meeting @ RIKEN

OPAL user meeting in Japan

28 Aug 2023, 09:00 → 30 Aug 2023, 18:00 Asia/Tokyo

Monday, 28 August

10:30 → 12:00	**OPAL: from today to tomorrow** Speaker: Dr Andreas Adelmann (PSI) opal-lect-1-riken-20...	1h 30m
13:00 → 13:20	**Yonekura-san** Speaker: Mr Yonekura (CYRIC)	20m
13:20 → 13:40	**Matsuda** Speaker: Dr Matsuda (Konan) OPALuserMEETING...	20m
13:40 → 14:00	**Chong** Speaker: Mr Chong (RCNP) OPAL-off-kai Chong....	20m
14:00 → 14:20	**Hara** Speaker: Mr Hara (RCNP) OPAL_user_meeting...	20m
14:20 → 14:40	**Matsui** Speaker: Mr Matsui (RCNP)	20m
16:00 → 17:00	**Morita**	1h

Tuesday, 29 August

13:30 → 14:30	**Imao** Speaker: Dr Hiroshi Imao	1h

Wednesday, 30 August

09:30 → 10:30	**Andreas** Speaker: Dr Andreas Adelmann opal-lect-3-riken-20...	1h
10:30 → 11:30	**Nishi** Speaker: Dr Nshi AI_at_RIKEN_Nishi_...	1h

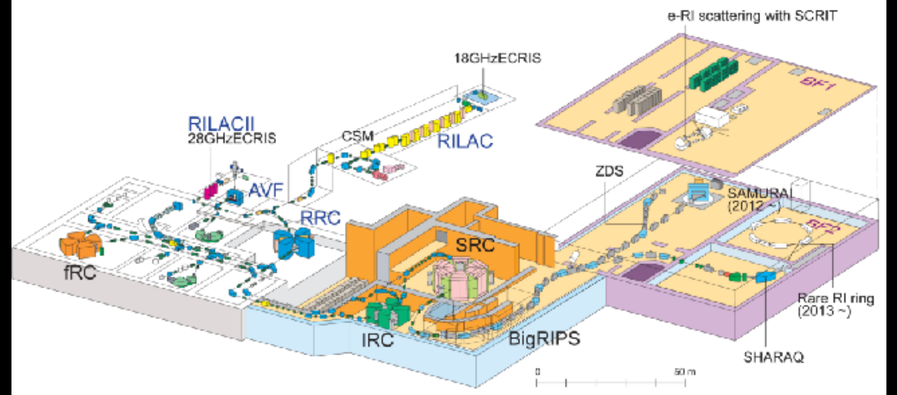
https://indico2.riken.jp/event/4579/

Japan OPAL Meeting @ RIKEN

Take home points:

- Need to organise OPAL User Meetings more regular: satellite meetings at IPAC/NAPAC (we do already at the FFA meetings)
- For the RIKEN U intensity upgrade
  - need multi species and SC in OPAL-X

□ Transport line (beam optics optimization)



Future goal : > 1 pμA $^{86+}$U beam (×10 times upgrade)

⇔ local beam loss ~ 0.2% can destroy the facility

To realize high intense $^{86+}$U beam
(> 1puA / 100 kW), we should
- suppress beam loss to 0.1 ~ 1%,
- continuous adjustment

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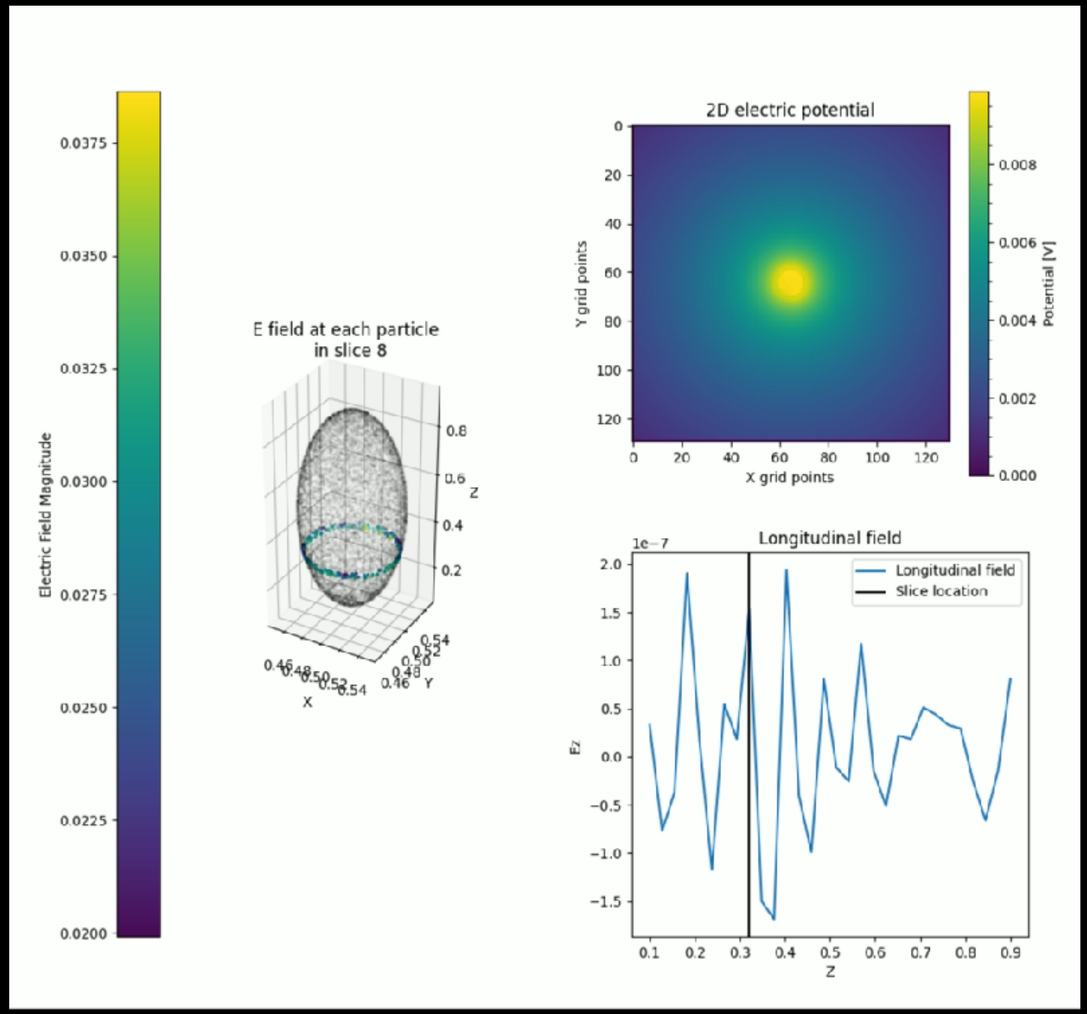
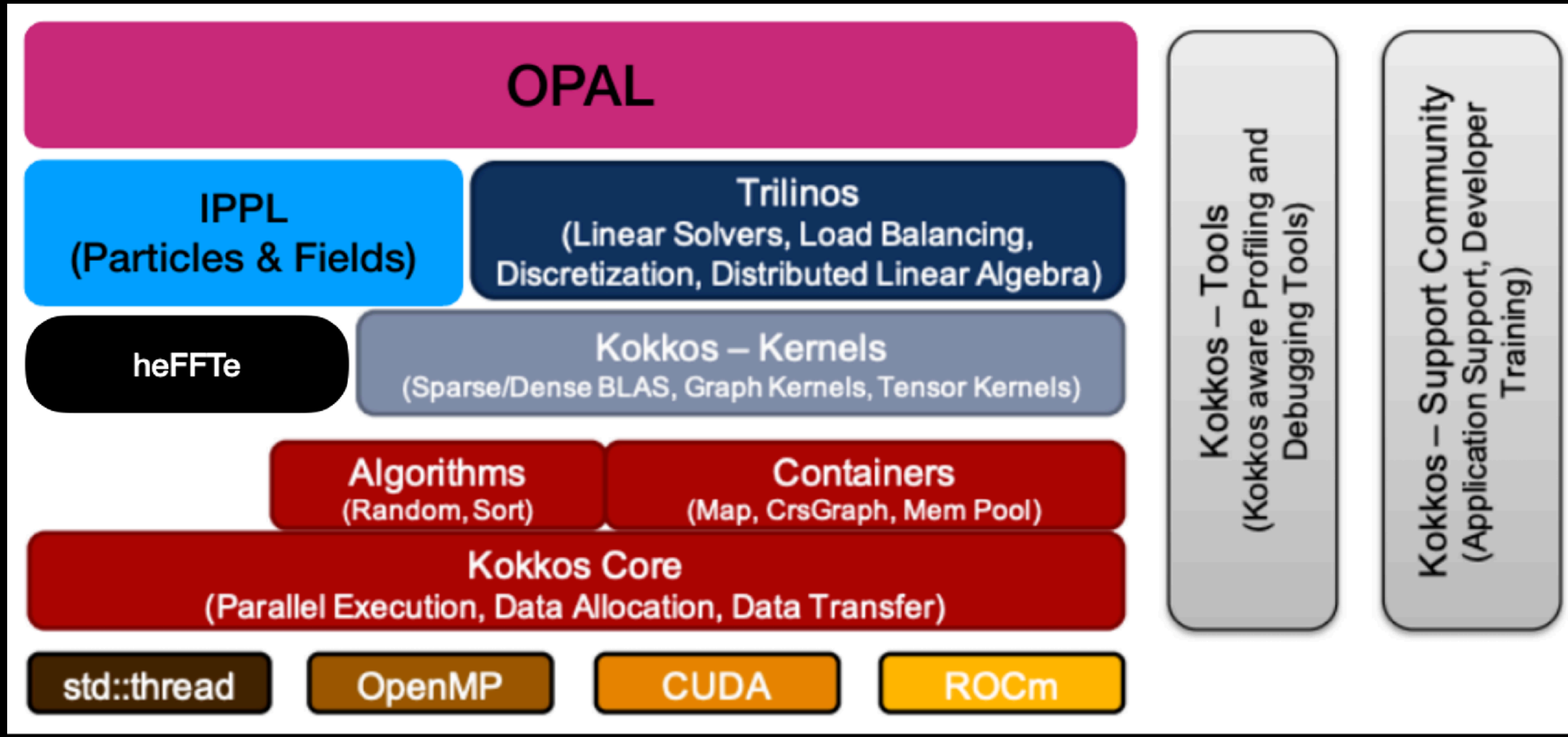
A new 2 1/2 Dimensional Solver

- for long bunches
- already based on IPPL V 2.0



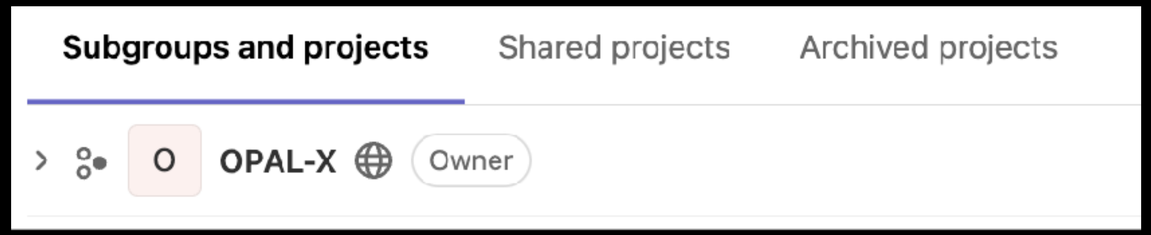
curtesy of C. Jolly

Towards OPAL & IPPL V 2.0

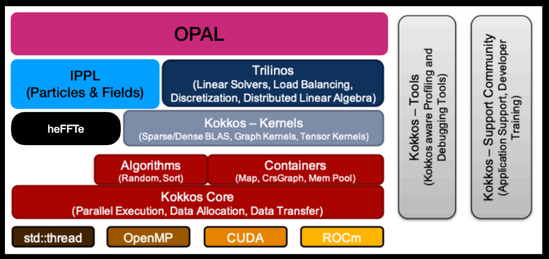


Towards OPAL-X &

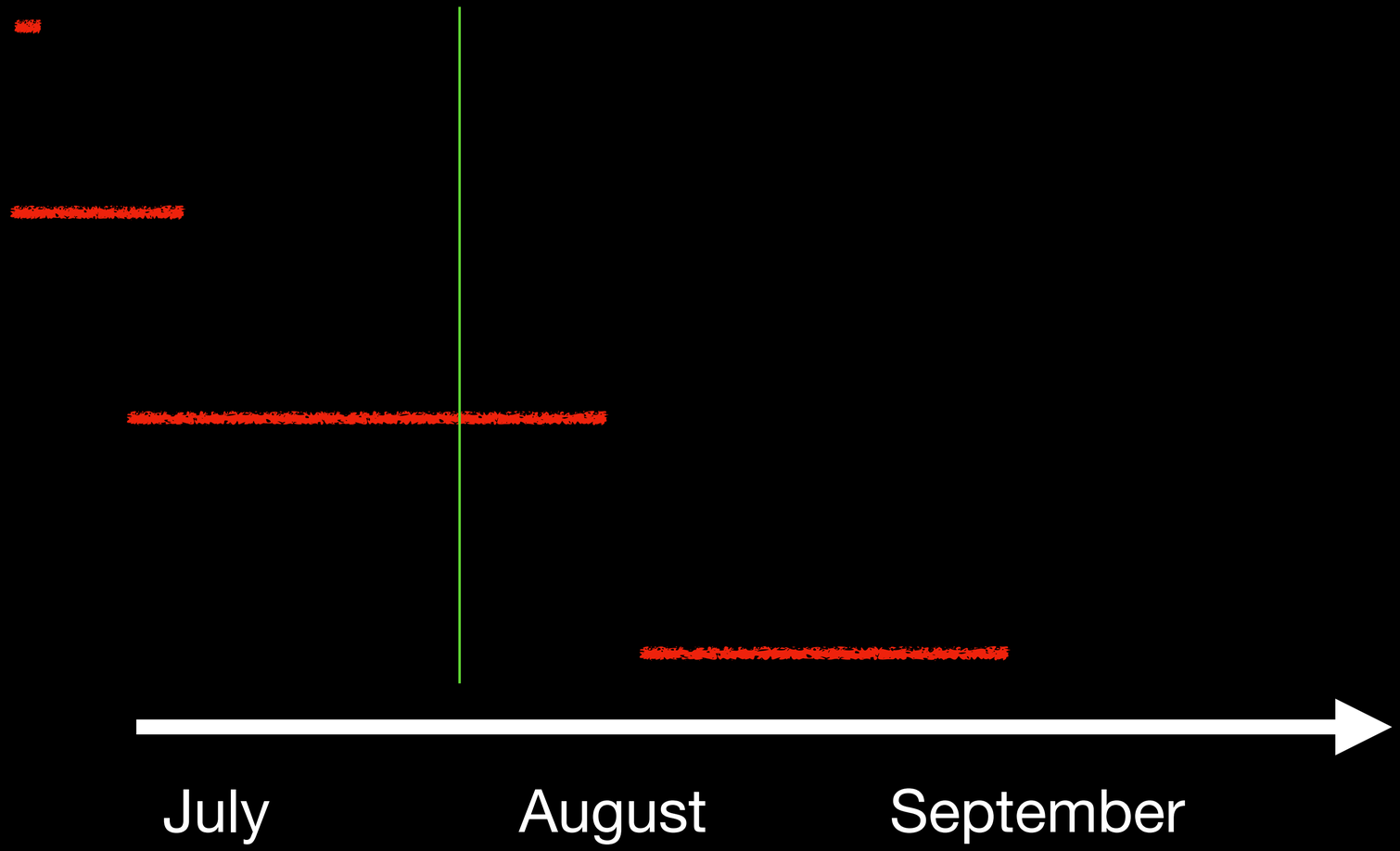
- Separation of OPAL & IPPL
- Make a bare bone OPAL (-t) version
  - + FFA modelling
- Design choices
  - Solvers in IPPL
  - need to redesign ALL particle loop over fields
    - no if’s, maybe no getField(x,y,z,t) calls
    - host/device
  - OAPL-cycl / OPAL-t unification —> OPAL



Timeline



- Separation of OPAL & IPPL (AA)
  - Make a bare bone OPAL (-t) version (AA)
  - Moshen intro to OPAL: build, code std, C++, work on some issues (Achim & AA)
  - Moshen intro to IPPL (Sri @ Juelich 2 weeks)



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